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adaptation-undp.org

Cover photo: Woman on the Senegalese Coast
Credit: Imen Meliane

Contents

Foreword

Around the world, climate change is undermining important development progress, with the poorest and most vulnerable being hit the hardest. With little ability to plan for disasters or adjust to growing climate variability, they are bearing the brunt of more frequent droughts, intense storms, and floods. This is why climate change adaptation is such a critical part of UNDP's efforts to help countries achieve the eradication of poverty, and the reduction of inequalities and exclusion.

Central to this work is supporting countries to integrate low-emission, climate-resilient objectives into their national and subnational development planning; put in place the right incentives for climate change adaptation; and reduce policy and investment risks to increase investments in climate-resilient development. The overall objective is always to advance inclusive and sustainable development.

The Global Environment Facility (GEF) and other partners join UNDP in these efforts. Together we have supported more than 100 countries on climate change adaptation. This report presents case studies from a number of these initiatives, with the aim of sharing innovative and successful approaches and ideas. We explore the link between poverty reduction and climate change adaptation, and show how addressing both challenges in tandem will result in more effective and equitable outcomes. The cases included draw on key areas of our current work, including capacity building, supporting climate-resilient livelihoods, stimulating entrepreneurship, and mainstreaming adaptation into development policies.

Much needs to be done to secure the livelihoods of vulnerable people in the face of mounting climate risks. It is our hope that this publication will spur further thinking and action to catalyse climate-resilient development. I recommend it to all who wish to understand and put in place an enabling environment for pro-poor adaptation to climate change.

Helen Clark
Administrator
United Nations Development Programme

Photo: Local Fisherman in Lofeagi, Tuvalu. Supported by SCCF.
Credit: Joe Hitchcock

2015 is shaping up to be the warmest year on record, and many countries and communities are already feeling the negative impacts of a changing climate. Droughts, violent hurricanes, increased coastal erosion and other changes are destabilizing critical ecosystems and undermining livelihoods, in particular among the poorest and most vulnerable populations. Moreover, the need for adaptation is here to stay: even with an ambitious climate agreement in Paris later this year, the global climate will keep changing for many years to come. Without appropriate adaptation, many of the hard-won development gains of recent decades will be at risk. For this reason, investment in adaptation is inseparable from poverty reduction.

Established back in 2001, the Least Developed Countries Fund (LDCF) and Special Climate Change Fund (SCCF) administered by the GEF were among the very first dedicated adaptation funds to be created by the international community. Globally, our US$1.3 billion strong portfilio of LDCF and SCCF projects supports vulnerable and low income countries and communities to develop adaptation measures including policies, plans, programmes, projects and other climate actions. By integrating climate risks and adaptation into more than 260 national development policies and plans in nearly 70 countries, we are supporting transformational change and helping to lay the foundation of a more climate-resilient world.

I am pleased to co-sponsor this publication which highlights how countries are utilizing GEF-managed funds to reach the dual goals of climate change adaptation and poverty alleviation. In partnership, the GEF and UNDP will continue to help countries reach their sustainable development priorities.

Naoko Ishii
CEO and Chairperson
The GEF

Photo: Farmers in Lao PDR. Supported by LDCF. Credit: Luke McPake

Executive Summary

UNDP has been working during the last decade to support countries to transition to green, inclusive, climate-resilient development paths. More than US$790 million in grant financing from the Global Environment Facility-managed Least Developed Countries Fund and the Special Climate Change Fund, as well as the Kyoto Protocol's Adaptation Fund and bilateral finance, have been mobilized to assist countries to achieve their adaptation priorities. These resources build on and complement over US$2.5 billion in co-financing that has also been invested.

The experiences and knowledge generated through the various initiatives that UNDP supports across the globe indicates that adaptation and poverty reduction are inherently linked and must be addressed simultaneously. Climate change acts as a risk multiplier, adding socio-economic and environmental risks to the already significant challenges that developing countries and poor communities face. Addressing poverty reduction and adaptation to climate change is therefore essential to preserve past, current and future development gains.

The cases in this report highlight the work UNDP is supporting to address poverty reduction and adaptation with resources from the Global Environment Facility, the Adaptation Fund and the Canada-UNDP Adaptation Facility. In order to achieve these two goals, a strong enabling environment comprising capacity building, empowering communities, engaging the private sector and supporting the development of institutions and policies has been critical. As such, this report focuses on case studies around four key elements:

- Strengthening institutional capacity, expertise and public sector mandates to coordinate and more effectively manage the emerging risks posed by climate change;
- Empowering communities to identify solutions and establish mechanisms to scale up local innovations;
- Stimulating small and medium-sized enterprises by reducing barriers to markets and credit and engaging the private sector to leverage finance and investment;
- Supporting governments to integrate climate change risks into key development plans, policies and strategies.

This work is ongoing and UNDP will continue to build partnerships to enable vulnerable people to adapt to the challenges of a changing climate.

Photo: Farmers in Vietnam supported by SPA Credit: UNDP CBA

Acknowledgements

This publication is a product of contributions from UNDP staff working to support countries to secure climate finance for adaptation to climate change. Special thanks to Jennifer Baumwoll, Keti Chachibaia, Mame Dagou Diop, Henry Rene Diouf, Benjamin Larroquette, Claudia Ortiz, Jaturong Padungsapya, Reis Lopez Rello, Johan Robinson, Yusuke Taishi, Shoko Takemoto, Jessica Troni, Tom Twining-Ward, Nargizakhon Usmanova, Gabor Vereczi, Janine Twyman Mills and Margarita Arguelles. Thanks to Stephen Gold, Rohini Kohli and Adriana Dinu for reviewing the publication, Sadhie Abayasekara for editing, and Shoko Takemoto, Doungjun Roongruang and Janine Twyman Mills for the layout and graphic design.

Authors: Jessica Gordon and Pradeep Kurukulasuriya.

Photo: The first of eight catches of the day in Namibia. Supported by SPA

Acronyms

AF	Adaptation Fund
CBA	Community-Based Adaptation
CDM	Clean Development Mechanism
CLEWS	Climate Early Warning System
DNM	National Meteorological Department, Niger
DRR	Disaster Risk Reduction
FFF	Fish, Fruit and Forests
GEF	Global Environment Facility
HDI	Human Development Index
LDC	Least Developed Country
LDCF	Least Developed Countries Fund
MDGs	Millennium Development Goals
NAPA	National Adaptation Programme of Action
PACC	Pacific Adaptation to Climate Change
PIMS	Project Information Management System
SCCF	Special Climate Change Fund
SEPLAN	Ministry of Environment, Honduras
SERNA	Ministry of Planning, Honduras
SRIC-CC	Strengthening the Resilience of our Islands and our Communities to Climate Change
SPA	The Strategic Priority on Adaptation, under the GEF Trust Fund
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

Photo: A Surveyor from the Department of Geology and Mines at the Lake Mitigation site in Lunana, Bhutan. Supported by LDCF. Credit:UNDP Bhutan

1. Introduction

Climate change threatens sustainable development and poverty reduction efforts worldwide by undermining socio-economic gains and magnifying threats to further progress (UNDP, 2007). Alterations in temperatures, rainfall patterns, the timing of seasons and the increasing frequency and intensity of extreme events will result in a range of adverse social and economic impacts, including reducing agricultural production and access to water and threatening food security and livelihoods. By 2050, climate change and environmental degradation will likely lead to an 8 percent decline in the Global Human Development Index (HDI), with a 12 percent decline in South Asia and sub-Saharan Africa (UNDP, 2011).

The poorest communities in developing countries, the focus of UNDP's work, bear the most severe impacts. These communities rely on climate-sensitive resources, have higher exposure to climate risk and have inadequate financial resources and institutional access to increase their capacity to adapt. Women are especially vulnerable due to their socio-economic roles including securing water, food and energy for cooking, caring and heating - resources which will be further constrained by climate change. Climate change exacerbates existing vulnerabilities, increasing the likelihood of locking those already at risk into cycles of poverty. Factors that lead to structural poverty, including marginalization and lack of access to social services, information and technologies, make adaptation more challenging. As a flood destroys fields and homes, a poor family may, albeit with great difficulty, have the means to recover but as a once-in-a-decade flood becomes an annual occurrence, previously useful risk management strategies are less effective.

Adaptation and the achievement of the Millennium Development Goals (MDGs) are inextricably related. There have been significant successes in achieving the MDGs: the number of people living in extreme poverty (less than US$1.25 a day) has been reduced by half; mortality rates from malaria have fallen more than 25 percent globally; and over the last 21 years, 2.1 billion more people have access to improved drinking water (UN, 2013). However, according to the Human Development Report (2014), there are still 1.2 billion people living in extreme poverty and 1.5 billion people living in multidimensional poverty. Moreover, those living between US$1.25 and US$4 remain vulnerable to falling back into extreme poverty in the face of climate threats. Securing past, current and future poverty reduction gains will not be possible without addressing adaptation. Likewise, adaptation to climate change is likely to be ineffective without also addressing the underlying structural determinants of poverty.

As the deadline for the MDGs approaches and the world moves towards the post-2015 development agenda, the joint focus on poverty reduction and adaptation will need to be strengthened. While these interactions are already evident through examining the links between MDG implementation and addressing climate risks, there has been little systematic examination of the relationship. One of the key strategies to eradicate extreme poverty and hunger (MDG 1) includes building climate-resilient agricultural practices and enabling smallholder farmers to plan effectively to meet new challenges to secure food for their families and communities. Reducing child mortality (MDG 4) and combating malaria (MDG 6) comprise preventative measures in emerging areas of climate change risk. Ensuring environmental sustainability (MDG 7) calls for enhancing the resilience of the natural resource base upon which human development in many least-developed and developing countries currently relies. Empowering women (MDG 3) is a prerequisite for poverty reduction and a focus for adaptation actions, as the majority of women work in climate-sensitive sectors. Given the extensive climate-induced impacts already unfolding and future projections that climate change will overwhelm existing institutional and risk reduction strategies, the urgency of addressing climate change adaptation and poverty reduction in an integrated manner becomes increasingly evident.

This report will focus on four themes that have emerged as central to UNDP's work on tackling climate change adaptation in the context of poverty reduction efforts. Capacity building, supporting climate-resilient livelihoods, stimulating entrepreneurship, and mainstreaming adaptation into development policies are the critical building blocks for creating an enabling environment for pro-poor adaptation to climate change.

Photo: Woman watering climate-resilient seeds in her garden in Niger. Supported by LDCF. Credit: Julie Teng /UNDP

UNDP and Climate Change Adaptation

UNDP, which has worked alongside governments to develop inclusive and responsive institutional structures, is in a strategic position to support adaptation for the most vulnerable in order to bring about transformational change. For the past decade, UNDP has scaled up its support to countries to transition to green, inclusive, low-emission climate-resilient development paths, reaching over 1.5 million direct beneficiaries. The current portfolio on adaptation includes 166 initiatives being implemented in 90 countries across the globe. UNDP has supported access to more than US$790 million in grant financing from the Global Environment Facility (GEF)-managed Least Developed Countries Fund and the Special Climate Change Fund, the Kyoto Protocol's Adaptation Fund (see Table 1) as well as bilateral donors such as Canada, Germany, Japan and Australia. Over the same period, UNDP has supported countries to leverage over US$2.5 billion in co-financing for adaptation, much of it domestic and international development finance, as part of its efforts to promote an integrated approach to managing climate change risks and uncertainty.

Photo: A farmer sowing seeds in Cambodia. Supported by LDCF. Credit: UNDP Cambodia

Table 1: Overview of UNFCCC's Adaptation Funds and resources accessed by countries with UNDP support, 2005 - 2013

	Adaptation Fund	Least Developed Countries Fund	Special Climate Change Fund	Bilateral Sources
Background:	Established under the Kyoto Protocol with proceeds from a 2 percent levy on CDM projects.	Set up under the United Nations Framework Convention on Climate Change (UNFCCC) to address the adaptation needs of the LDCs (GEF 2012a).	Set up to finance initiatives relating to climate change that are complementary to those funded by the climate change focal area of the GEF Trust Fund, and through bilateral and multilateral sources, in climate change adaptation, technology transfer, economic diversification (GEF, 2012b).	Fast-Start Finance
Countries Accessing Resources with UNDP Support:	25	47	24	25
Amount of Grant Funding Countries have Accessed with UNDP Support:	US$141 million	US$407 million	US$80 million	US$162.4 million
Number of Projects Under Implementation:	15	88	13	26

UNDP's Theory of Change on Catalysing Environmental Finance for Climate-Resilient Development

In order to achieve climate-resilient development, UNDP assists countries by providing technical and policy support to secure resources and implement successful adaptation initiatives. This work is guided by a three-pronged theory of change: capacity enhancement, creating enabling conditions and catalysing finance. Capacity enhancement entails: a) strengthening the technical and functional ability of national, subnational and communities in key economic sectors to assess vulnerability to climate change; b) assessing, prioritizing and selecting economically-efficient, cost-effective options; c) implementing adaptation measures; and d) monitoring, evaluating and learning through practical experiences. Strengthening enabling conditions involves national, subnational and sectoral policy, institutional frameworks, regulatory and incentive schemes, financing channels and administrative procedures that can support adaptation in the short, medium and long term. Catalysing finance includes supporting countries to utilize available public funding to attract innovative financing including unlocking and redirecting private finance for adaptation.

UNDP's support to countries on adaptation has specifically focused on five core areas. Specialized technical assistance is mobilized to:

1. Identify priority interventions which safeguard existing livelihoods, infrastructure and businesses, facilitate new climate-resilient business opportunites and promote no-regrets options;
2. Identify barriers to promote priority investments from being made, including those funded from domestic and external financial sources;
3. Identify policy and financial risks generated by these barriers that prevent the requisite investment from materializing;
4. Identify appropriate de-risking policy and financial instruments; and
5. Secure alternative sources of finance to support the application of a de-risking strategy initiative.

This theory of change is manifested across the UNDP's portfolio. Support to countries on adaptation is organized around several key signature programmes:

Signature Programme #1: *Supporting Integrated Climate Strategies* - assisting national and subnational governments to make full use of a range of public and private financing mechanisms to develop and strengthen climate-resilient policies and strategies.

Signature Programme #2: *Advancing Cross-sectoral Climate-Resilient Livelihoods* - supporting climate and economically-resilient rural livelihoods, working on long-term integrated planning and adaptation in all productive sectors.

Signature Programme #3: *Ecosystem-based Adaptation* – managing and rehabilitating ecosystems for adaptation to and mitigation of climate change.

Signature Programme #4: *Climate Resilient Integrated Water Resource and Coastal Management* - supporting the application, replication and scaling up of integrated water resource and coastal management at the municipal, provincial and national levels, widely applying strategic planning tools to improve climate resilience in watersheds and along coasts.

Signature Programme #5: *Promoting Low Emission and Climate Resilient Infrastructure and Energy* - promoting climate-resilient energy, infrastructure and transportation systems.

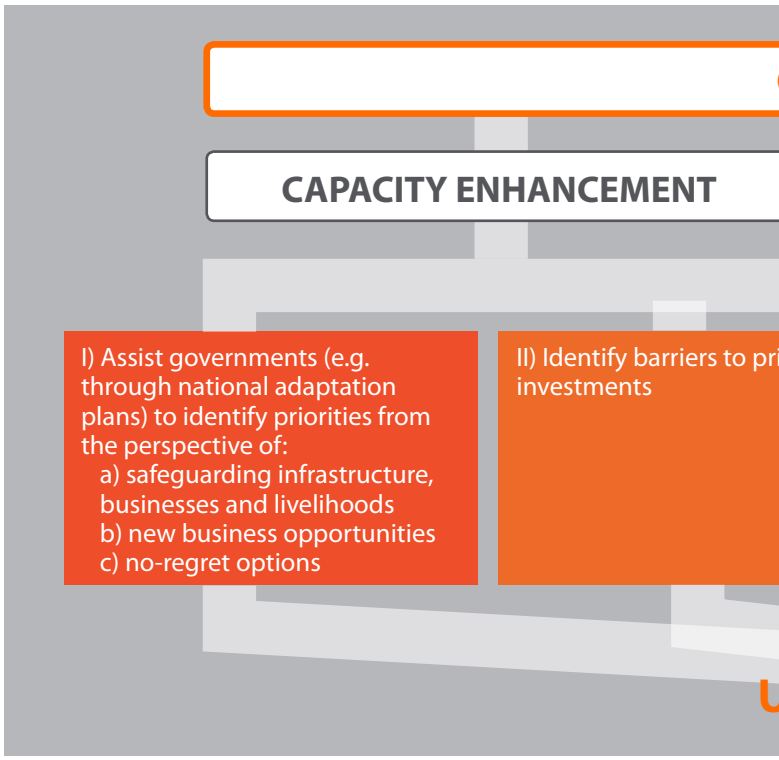
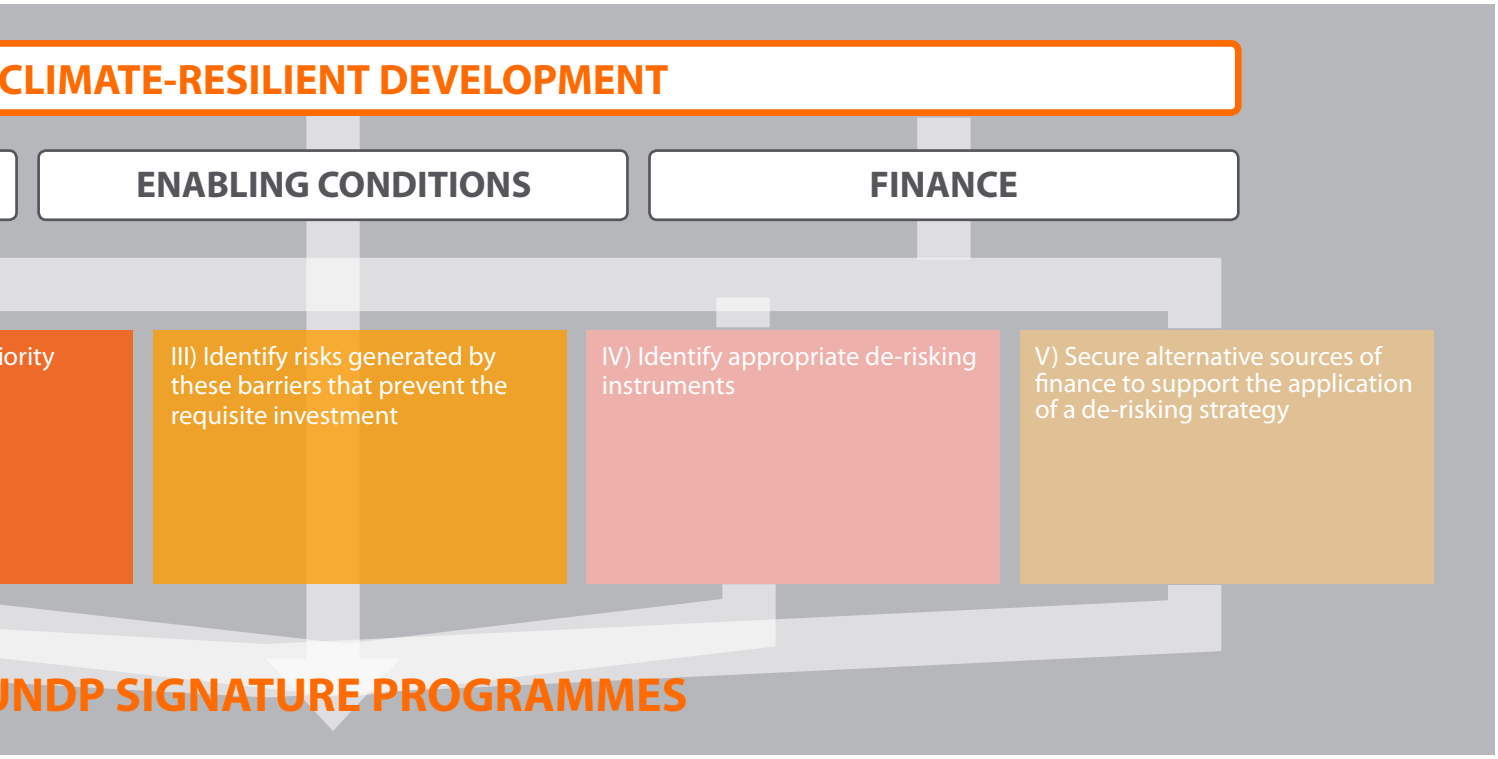
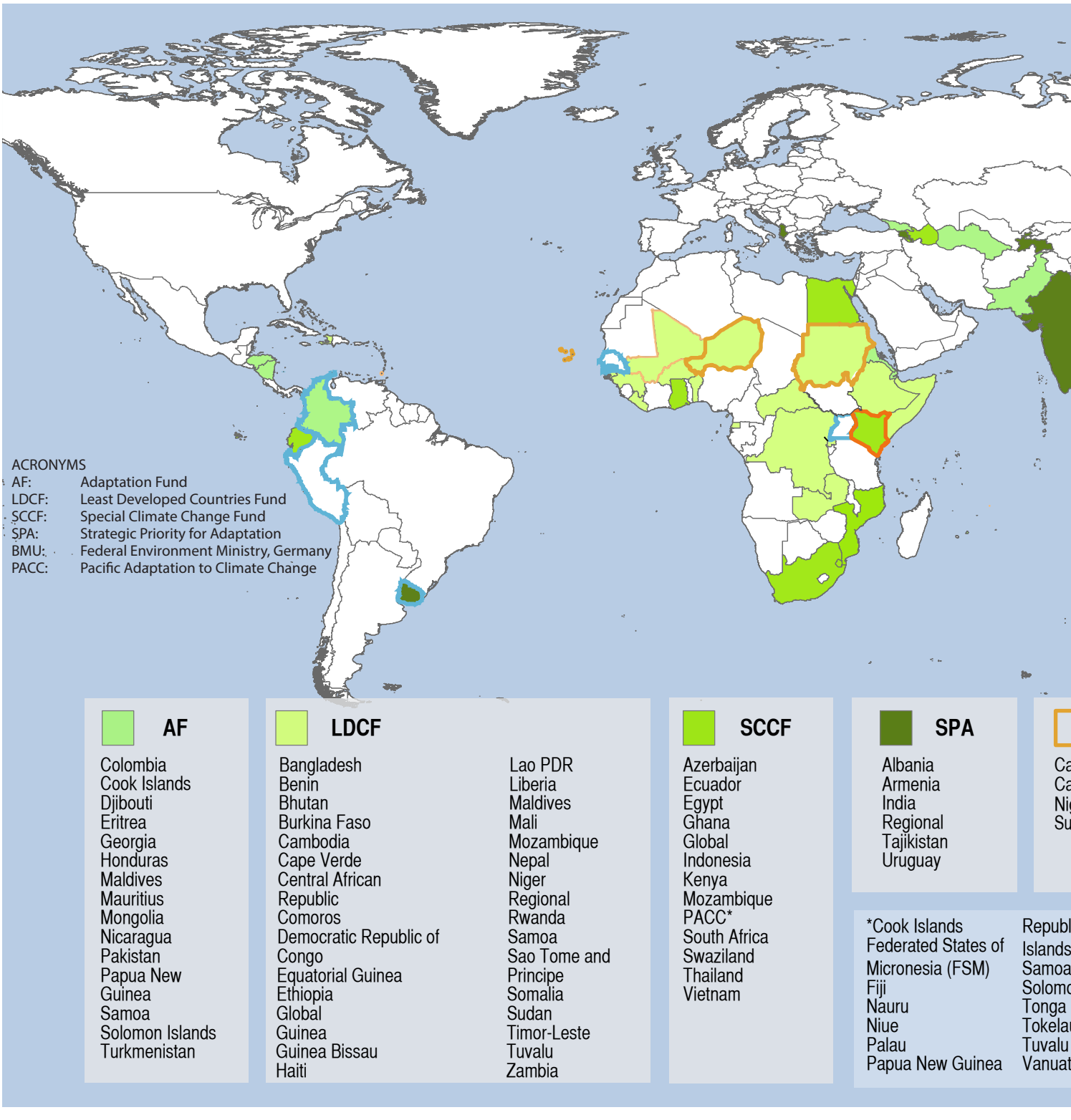


Photo: Local community members participating in the construction of graded terraces to control for soil erosion in Rwanda. Supported by LDCF. Credit: Rik Moors/One UN Rwanda

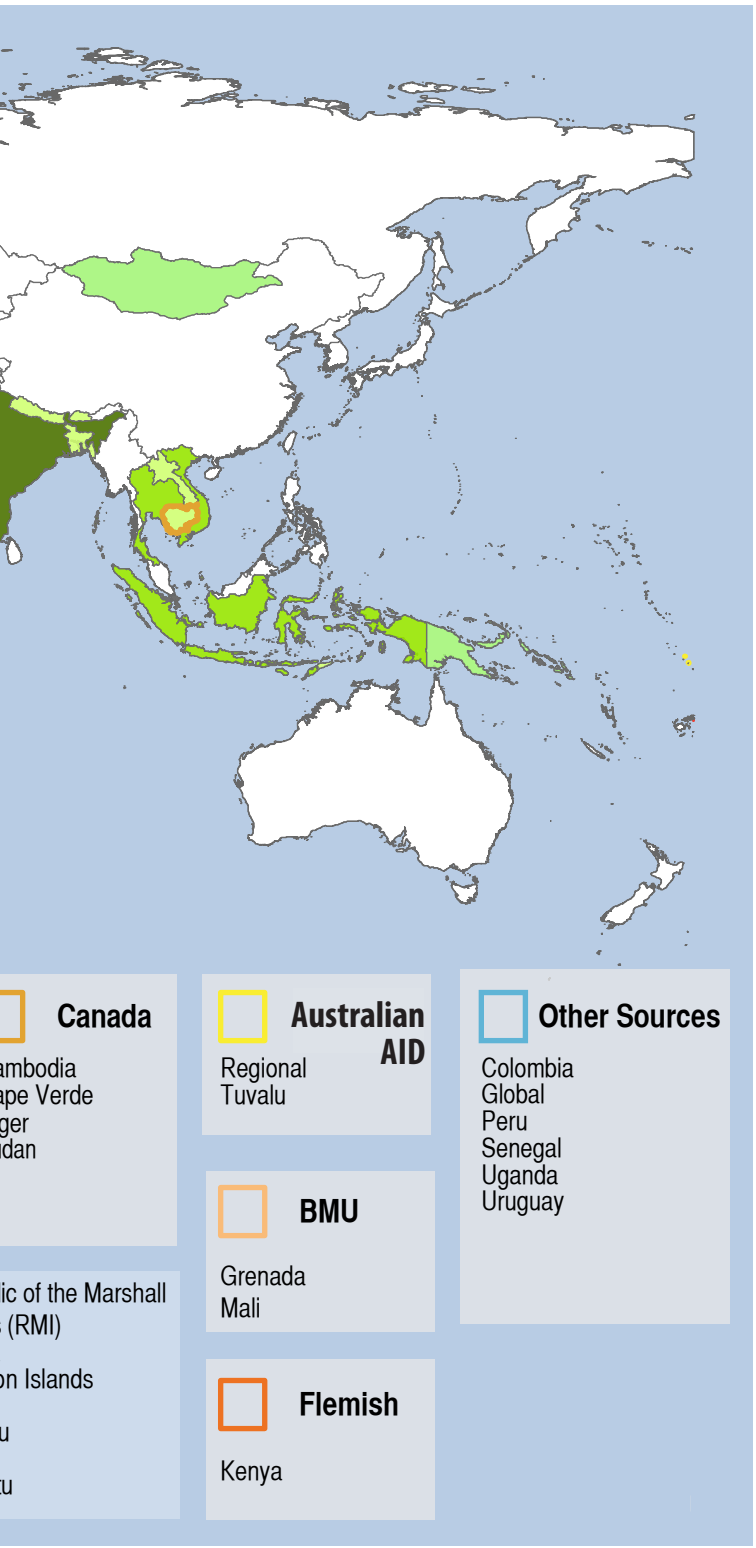
Figure 1: UNDP's Theory of Change on Catalysing Environmental Finance for Climate-Resilient Development



Snapshot:
The UNDP Global Adaptation Portfolio



Map Source: UNDP PIMS data (as of March 1, 2013) mapped using ArcMap Software. Disclaimer: Any designations on maps or other references employed in th of UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.



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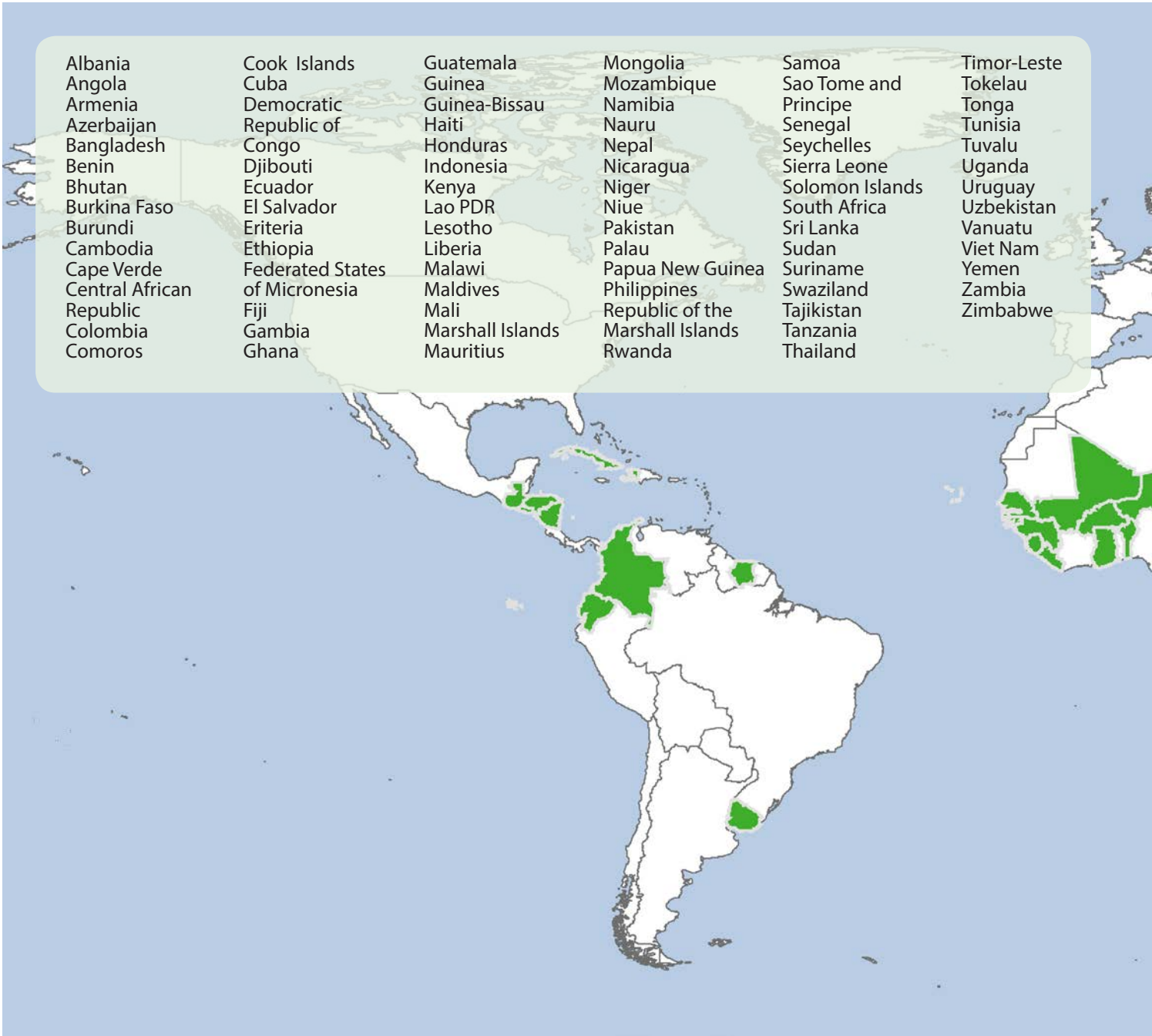
Report Structure

This report demonstrates the breadth of UNDP's work on climate change adaptation and poverty reduction. The report is centred around four themes which are vital to addressing these issues in an integrated manner. Section 2 highlights initiatives that are ***Strengthening Technical and Functional Capacities*** to coordinate and more effectively manage the emerging risks posed by climate change. Section 3 showcases initiatives that are working on the ground to empower local communities to adapt to climate change through ***Supporting Climate-Resilient Livelihoods***. Section 4 presents initiatives that are ***Stimulating Entrepreneurship*** and private sector engagement in the face of climate risks and opportunities. Finally, Section 5 includes initiatives that are focused on supporting subnational government efforts on ***Mainstreaming Adaptation into Development Planning***.

While this report will present a few initiatives within each theme, it should be noted that the majority of initiatives are addressing several and in some cases all of these themes. The maps at the beginning of each section demonstrate the geographical scope of UNDP's work within each theme. More information on UNDP's adaptation work can be found at UNDP's Adaptation Learning Mechanism (www.undp-alm.org) and UNDP's Climate Change Adaptation site (adaptation-undp.org).

2. Strengthening Technical and Functional Capacities

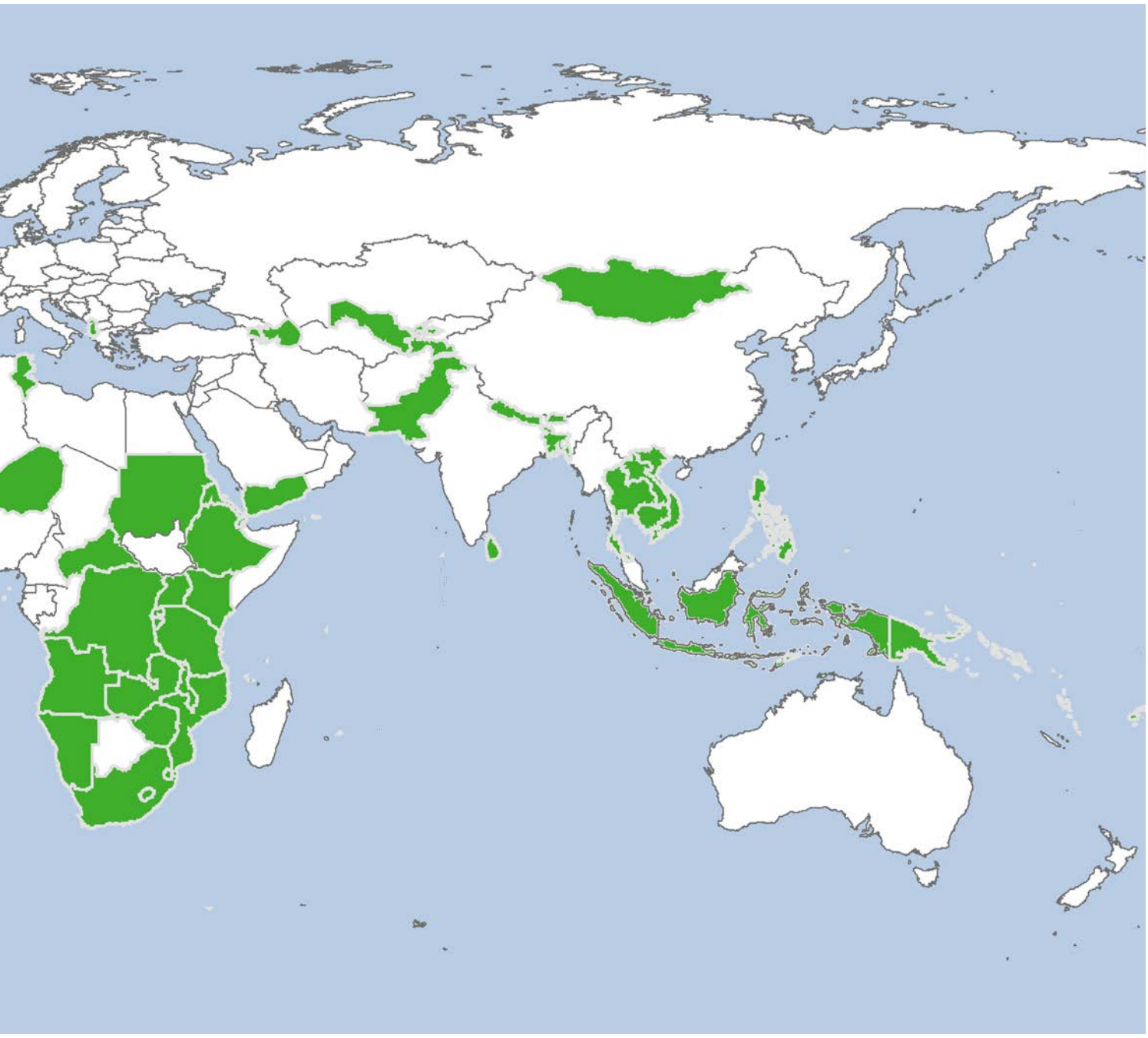
Country Initiatives Supported by UNDP



Map Source: UNDP PIMS data (as of March 1, 2013) mapped using ArcMap Software.
Disclaimer: Any designations on maps or other references employed in this document do not imply the expression of any opinion whatsoever on the part of UN

Across the globe, UNDP is supporting countries to build the technical and functional capacity to reduce climate risks and support local livelihoods. To achieve this goal, UNDP is securing financing for governments to create platforms for multi-sector and multi-stakeholder engagement, develop new methodologies for managing and collecting climate-risk data, improve decision-making systems and develop training and information management systems.

This section presents examples of this work. In Ghana, thanks to financing from SCCF, health sector workers and policymakers now have the tools to develop and utilize climate-risk maps in policy and planning to ensure evidence-based decision-making in a changing climate. In Honduras, with financing from the Adaptation Fund, the government is developing collaborative, cross-sectoral platforms for learning and policymaking, leading to more integrated water planning that responds to urban water stress. In Samoa, with financing from LDCF, a climate early warning system has been established to provide relevant data to inform planning for the agriculture and health sectors. These efforts are developing systems for informed and iterative policymaking that lead to reduced risk for poor populations.



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GHANA: Establishing a climate-sensitive health planning system

Climate change and variability has multiple influences on human health including impacts on disease vectors, waterborne pathogens and contaminants. Weather and climate are among the factors that determine the geographic range and incidence of several major causes of poor health in Ghana, particularly malaria, diarrheal diseases and cerebrospinal meningitis. These diseases contribute to about half of Ghana's total disease burden, demonstrating the considerable impact that an increase in cases could have on public health without appropriate planning.

In line with efforts to achieve the health-related MDGs under changing climatic conditions, SCCF funds and UNDP's technical support are enabling the Ministry of Health to strengthen policy processes to generate and respond to climate-sensitive health risks. In particular, SCCF financing has led to the development and application of climate change-induced health risk maps, supported by training and capacity building activities. Risk mapping has never before been applied to the health sector in Ghana, and is an innovative approach for visualizing complex data. These maps permit relevant planners to determine vulnerable areas for current and future disease burdens for outbreaks of malaria, meningitis and cholera. The maps combine existing climate, health, poverty and vulnerability data including gender-aggregated data. They provide early warning and policy-relevant indicators in order to facilitate the appropriate allocation of financial resources for response measures at the national and district level. This information will be incorporated into annual and peri-annual planning processes including the number of physicians needed in each area and types of investment required in order to prevent any climate risk-related outbreaks. Additionally, this tool will provide health officials with appropriate information to iteratively revise policies as the underlying data is updated over time.

In order to support the capacity building of the health sector, these efforts have been combined with capacity building, awareness raising and training. The Ministry of Health has developed a training manual aimed at improving health sector worker's capacity to identify, plan, prepare for, implement and evaluate climate-sensitive health adaptation options, especially for women and children. Thus far, training health workers has resulted in the development of three district climate change and health action plans and work plans. In the following year, there will be additional training for district level health workers on risk mapping to expand the usage of the tools.

These activities are reinforced through the development of an interagency coordination committee in the three pilot districts. This has provided a mechanism for joint planning of activities and information sharing which was previously a barrier to integrated decision-making. This is combined with a national committee comprised of government departments at the national and district level and other key stakeholders. The committee provides institutional support for cross-sectoral synergies, technical validation of the maps and tools and a systematic means for the risk maps to be updated.

The risk maps will be mainstreamed into health policy planning and budgeting, providing a channel to finance interventions and ensure sustainability and usage of the tool. The Ministry of Health is currently preparing the Health Sector Medium Term Development Plan (2014-2017), which for the first time includes mainstreaming climate change into the health sector. The Government with SCCF financing and UNDP support is providing a strong foundation for health planning to address current and future health risks and hence saving lives and reducing health-induced poverty.

GHANA

Project Title:
Integrating Climate Change into the Management of Priority Health Risks in Ghana

Duration:
2010-2014

Funding Sources:
GEF / SCCF
UNDP

Partners:
Ministry of Health

Grant Amount:
US$1,718,182

Location:
Keta (Volta region), Gomoa West District or Apam District (Central Region), and Bongo (Upper East Region)

HONDURAS: Developing technical expertise and collaborative platforms to inform water planning

Tegucigalpa, the capital of Honduras, faces frequent water shortages and severe year-round rationing as the watershed only produces enough for half of its needs. Projections indicate that water scarcity will become more extreme with climate change and increasing variability, leading to mounting stress on an already strained system. Addressing water issues is paramount to addressing climate vulnerability and poverty. Honduras is one of the poorest countries in Latin America, with 57 percent of the households in the capital living below the poverty line.

With financing from the Adaptation Fund and support from UNDP, the Honduran Government is establishing a strong foundation for climate-sensitive water planning through building interagency collaboration, institutional capacity and engaging a diverse set of stakeholders. A technical platform for interagency coordination and cooperation has been established, providing a mechanism for learning and a collaborative planning approach. In addition, the initiative has developed a series of trainings, leading to an informed cadre of technical specialists to strengthen institutional and community knowledge and to build support for adaptation actions. The trainings have included over 600 specialists from key institutions, municipalities and interest groups with equal participation of men and women. In partnership with the Autonomous University of Honduras' Department of Earth Science and the Department of Civil Engineering, an in-depth six-month climate change course and climate change and water resources course has been developed. The courses have increased technical knowledge while also promoting skills such as collaborative planning and community engagement, producing a dedicated group of advocates within various institutions. A Climate Change Adaptation Trainers certification course has also been developed for Ministry of Environment (SERNA) and Ministry of Planning (SEPLAN) staff. Trainers will train other staff members to support the mainstreaming of adaptation into municipal and development plans.

As a compilation of the information and experiences that the initiative has generated, SERNA and SEPLAN have developed a four-module guidebook on mainstreaming climate change adaptation and disaster risk management into development planning. The guidebook was designed to provide a methodological framework for local actors to plan and implement interventions, recognizing their role as drivers of development. Thus far, the guidebook has been applied to five regional planning processes in the Land Management Development Plans in the Gulf of Fonseca Region, Comatagua Valley, Olanco Valley, Lempa Region and Central Region. This is a landmark for the country as this is the first time adaptation priorities have been mainstreamed into planning and budgeting. The process, institutionalized by SERNA and SEPLAN, uses a participatory and bottom-up approach. In addition, each regional plan includes an action plan on how to coordinate infrastructure investments and identify potential funding sources. The Government plans to expand this methodology across the country to support climate-resilient planning.

HONDURAS

Project Title:
Addressing Climate Change Risks on Water Resources in Honduras: Increased Systemic Resilience and Reduced Vulnerability of the Urban Poor

Duration:
2011 - 2016

Funding Sources:

AF

Partners:
Secretariat for Natural Resources and Environment

Grant Amount:
US$5,180,000

Location:
Tegucigalpa and the watersheds that provision the capital city

SAMOA: Collecting and utilizing climate data for agriculture and disaster planning

According to the Climate Risk Profile for Samoa (2007), climate change is already affecting human health and food production. Increasing air and water temperatures, increasing frequency and intensity of flooding are impacting food access, agricultural production and fish stocks. About 70 percent of Samoa's population and infrastructure are located in coastal areas, resulting in significant impacts from sea level rise, extreme events and storm surges. Disasters are detrimental to poverty reduction as development gains can be swept away in minutes leaving families without homes and food.

In order to safeguard human development in Samoa from the risks associated with climate change, the Government with support from UNDP has developed the Integrating Climate Change Risks in the Agriculture and Health Sectors in Samoa, the first initiative under Samoa's NAPA. With financing from LDCF, the Samoa Meteorology Division has strengthened its technical and organizational capabilities in order to improve early warning systems and acquire data for effective planning.

A Climate Early Warning System (CLEWS) has been established to provide comprehensive early warning information to the agriculture and public health sectors, focusing on key linkages between weather, climate, agriculture and health. This system combines historical experience, traditional knowledge, observations and analysis, and communications technology to provide information on changing risk levels and to inform decision-making at all scales (see Figure 2). LDCF financing has supported the installation of the first automated weather stations in the country. This has significantly expanded the climate observation network and has improved weather risk forecasting for extreme events. Additionally, it has improved the Government's emergency response capabilities and its ability to share timely information with the public in order to protect lives.

SAMOA

Project Title:
Integrating Climate Change Risks in the Agriculture and Health Sectors in Samoa

Duration:
2009-2015

Funding Sources:

GEF / LDCF

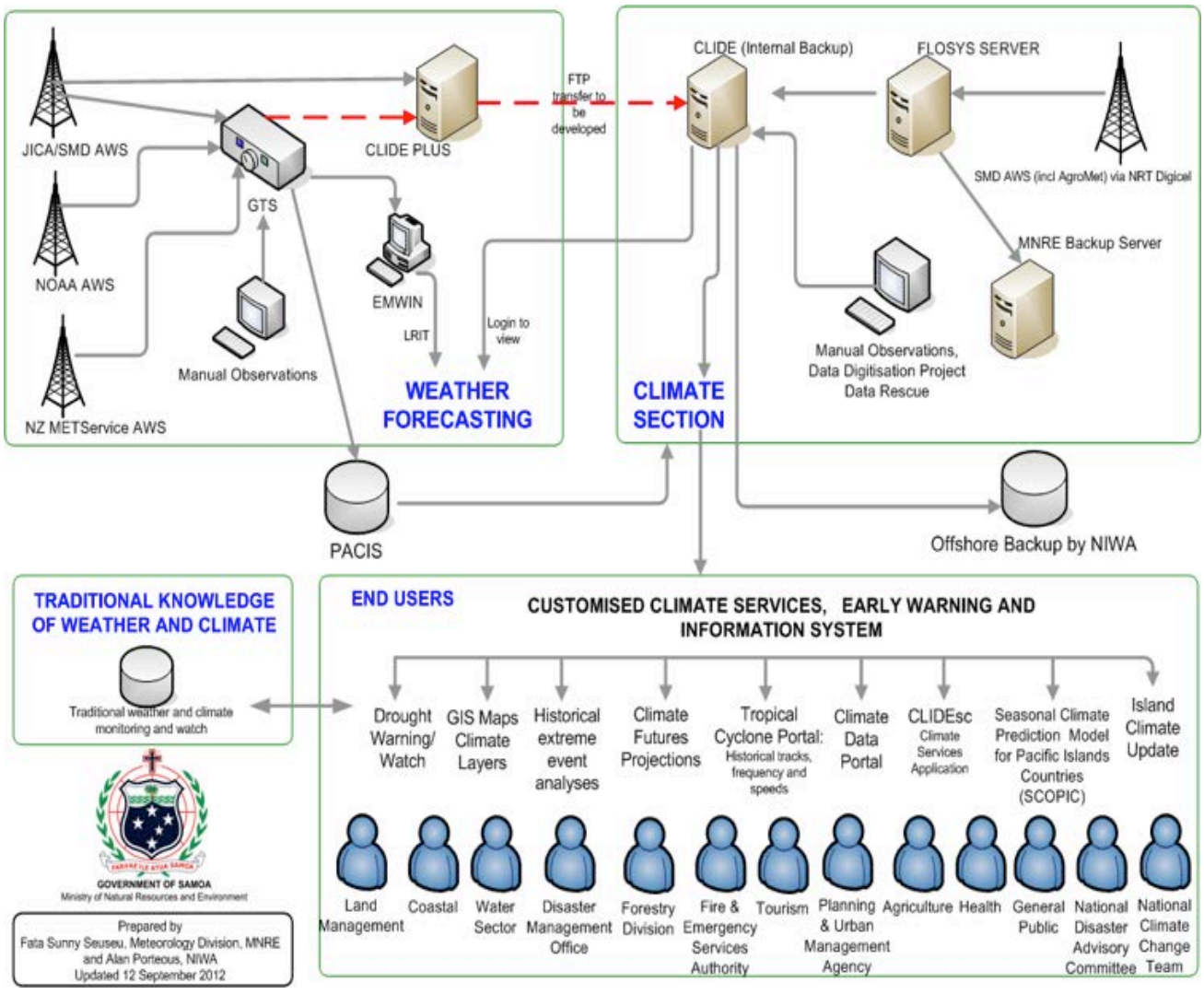
Partners:
Ministry of Natural Resources and Environment, Ministry of Agriculture and Fisheries and Ministry of Health

Grant Amount:
US$2,000,000

Location:
Alafua, Nuu, Afiamalu, Vaoala village

Photo: Sea walls constructed for coastal protection in Samoa. Supported by LDCF. Credit: UNDP Samoa

Figure 2. Main Components of the Climate Early Warning System in Samoa



An open source database management system has been developed to improve the use and analysis of climate data. The Meteorology Division has undergone training in the maintenance and calibration of meteorological instruments, data collection and analysis. The Division is currently providing tailored climate data including three month and six month projections to the Ministry of Agriculture and Fisheries, Ministry of Health, and National Health Services. This collaboration has been institutionalized and the data is informing climate-resilient planning in these sectors. In addition, the Meteorology Department has developed climate risk and productivity models under different climate conditions to produce national soil and crop maps. This visualization of complex data provides a means for agricultural planners to better understand and respond to emerging trends. Agricultural extension staff have begun utilizing the data to adapt farming practices to changing climate conditions. This system is providing communities with timely, relevant and accessible data to inform decision-making.

CLEWS applications are currently being extended to other sectors, such as forestry and tourism with the active engagement of national agencies and community practitioners. For example, the data is now being used to develop six month projections for a forest fire hazard index. The Disaster Management Office is training the fire service to understand and appropriately respond to the data. It is a model for the region, with tools and capacity building to address short-term climate risks and to develop climate-resilient long-term planning mechanisms to support sustainable human development in the Pacific Islands.

Snapshot from the Portfolio:

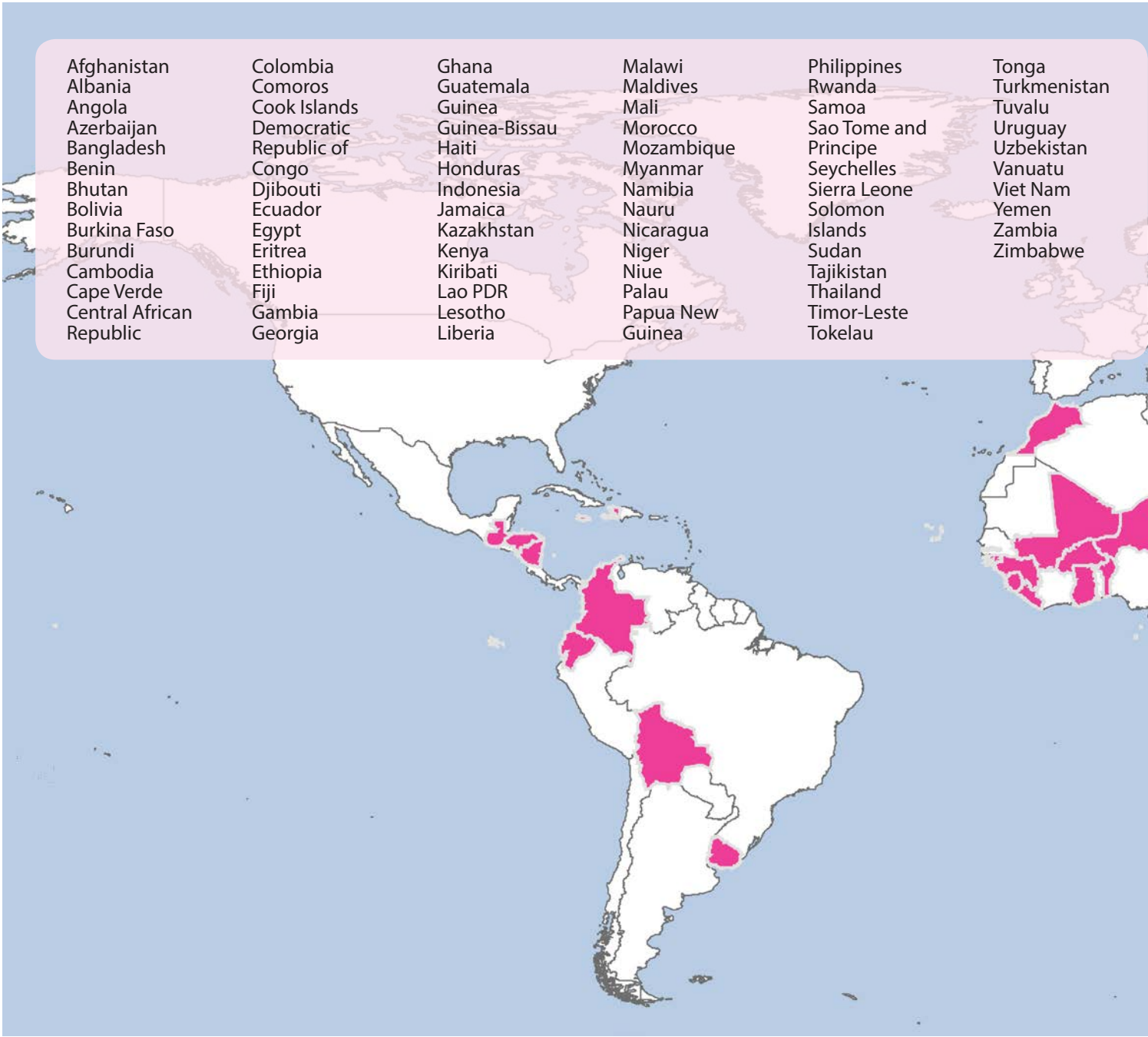
LAO PDR: Bringing Improved Seeds to Market

Photo: Rice production as part of micro-watershed management in Kang Village, Xayaboury, Laos. Supported by LDCF.
Credit: IRAS Project/UNDP

Lao PDR is facing a more variable climate combined with increasing drought and flood events. This has led to a two-third reduction in rice production, a litmus test for maintaining food security. The Government recognizes that food security and poverty alleviation are priorities and with financing from LDCF and support from UNDP, has developed the ***Improving the Resilience of the Agriculture Sector in Lao PDR to Climate Change Impacts*** initiative. The Government is piloting a range of adaptation measures including testing drought and flood-resistant rice varieties in historically vulnerable areas. The varieties, developed by the National Agriculture and Forestry Research Institute, have shown 20 percent yield increases. While the results are promising, the Government is also consulting with regional experts on resistant varieties in order to build capacity and learn from other experiences in the region, where farmers are facing similar risks. After further testing, the Government plans to deliver improved varieties to local markets to ensure access for all farmers. In order to do this effectively, a supply chain analysis is being conducted to understand and build on existing distribution networks.

3. Supporting Climate-Resilient Livelihoods

Country Initiatives Supported by UNDP



Map Source: UNDP PIMS data (as of March 1, 2013) mapped using ArcMap Software.
Disclaimer: Any designations on maps or other references employed in this document do not imply the expression of any opinion whatsoever on the part of U

In order to reduce risks for the most vulnerable, UNDP's adaptation work is aimed at supporting the promotion of climate-resilient livelihoods. Empowering communities through access to information, technologies and finance breaks barriers to innovation and provides channels for scaling up local successes.

This section presents cases where UNDP is working with governments to support climate-resilient livelihoods. In Bangladesh, diversified climate-resilient farming practices are providing income and food security for disaster-prone coastal communities. In Sudan, communities are testing simple technologies to improve livelihoods in a drier climate. In Namibia, a livestock improvement and sustainable agriculture programme is securing livelihoods for the most vulnerable households. This work has demonstrated that enabling communities to identify and implement solutions builds resilience to climate shocks at the household level while also setting the stage for bottom-up climate-resilient development planning and policy frameworks.

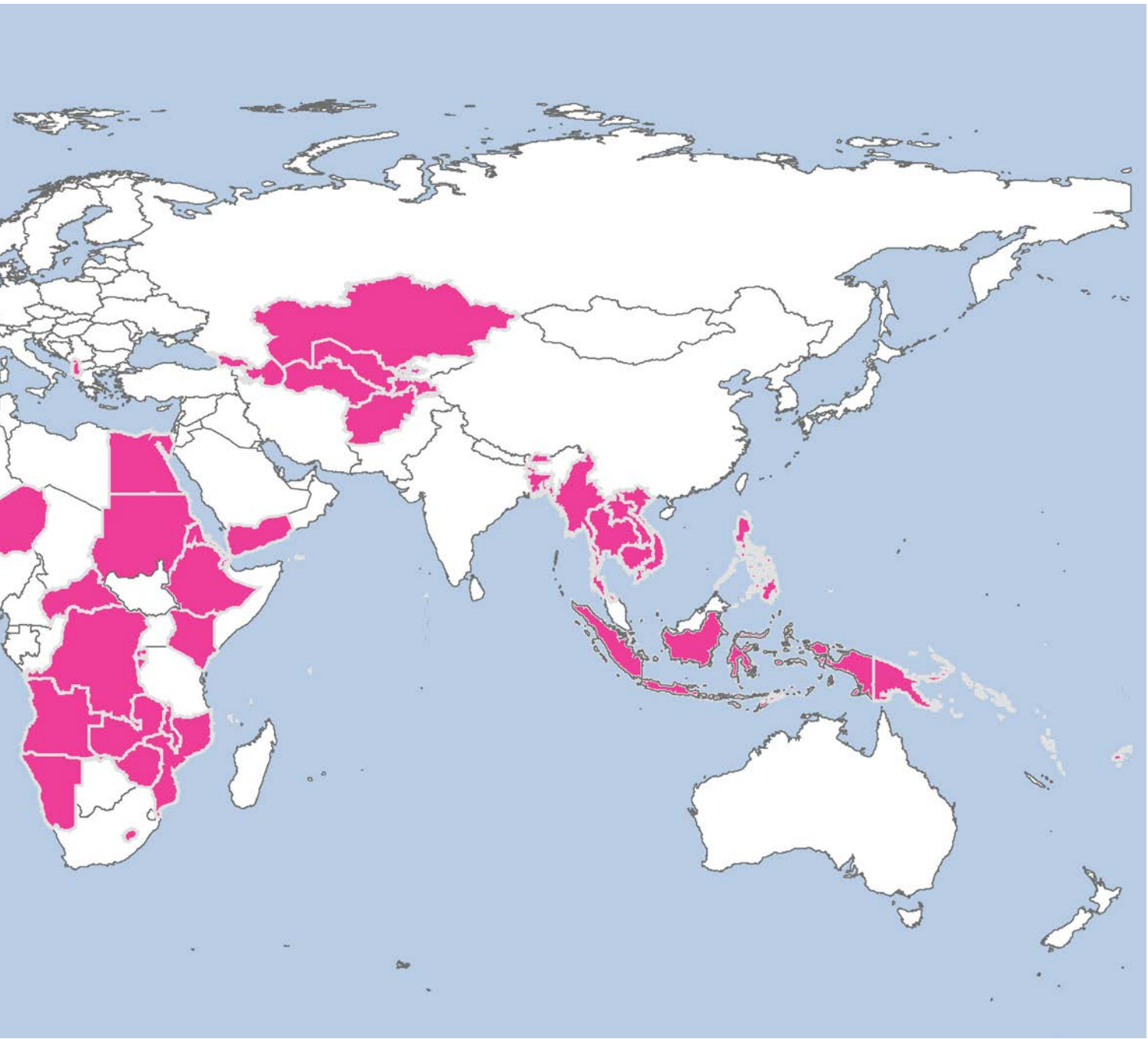


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Photo: A trainin

BANGLADESH: Income generation through innovative agricultural practices

Bangladesh's low-lying coastal communities face numerous climate change risks including increasing numbers of cyclones, tidal bores, floods, saline intrusion and sea level rise. This is leading to increased mortality, loss of assets and livelihoods, reductions in food security and increasing migration pressure. Coastal areas, while the most at risk from the direct impacts of climate change, are also plagued by higher poverty rates and climate-dependent livelihoods such as forestry, agriculture and fisheries, leading to high overall vulnerability.

The Government, aware of these risks, has put in place policy instruments that link poverty reduction work with efforts to reduce vulnerability to natural hazards and other climate impacts. The Poverty Reduction Strategy Paper states that hazards constrain national development and therefore disaster risk reduction is necessary to alleviate poverty. According to the NAPA and the Second National Communication to the UNFCCC, poverty limits the ability

g for women farmers in Bangladesh. Supported by SPA. Credit: UNDP Bangladesh

BANGLADESH

Project Title:
Community-Based Adaptation to Climate Change through Coastal Afforestation in Bangladesh

Duration:
2009-2014

Funding Sources:
GEF / LDCF
UNDP

Partners:
Ministry of Environment and Forests and Forest Department

Grant Amount:
US$3,300,000

Location:
Barguna, Patuakhali, Bhola, Noakhali, and Chittagong districts

for people in Bangladesh to adapt. Therefore, within policy frameworks it is clear that poverty and climate change must be addressed in tandem.

In the coastal zone, access to land and farming are the limiting factors for poverty alleviation. With LDCF financing and UNDP support, the Ministry of Environment and Forests and the Forest Department developed the innovative Fish, Fruit and Forests (FFF) model to provide livelihood security. FFF provides short, medium and long-term resource generation options, ensuring diversified, sustainable climate-resilient livelihoods. The model can sustain eight households on only one hectare of land, a useful approach for a land scarce country such as Bangladesh.

Raised mounds and ditches are used to maximize space for multiple uses. Mounds are cultivated with vegetables, high yield fruit varieties and forest trees. Scaffolding on the edges of the ditch provide space for climbing vegetables. Additionally, the trees can be pruned for daily fuel needs and can in the long-term be sold for timber. The mounds are raised, protecting crops from the increasing tidal surges and storms. Ditches are used for irrigation, freshwater fish cultivation and can also be used as a reservoir.

Through working with landless farmers and prioritizing abandoned or widowed female-headed households, the initiative is focused on empowering the most vulnerable in these communities with land rights, food and income security. FFF produces enough vegetables, fruit and fish to provide for the families' nutritional needs and additionally generates income from selling the surplus. It has provided substantial returns doubling and tripling the income for households, generating at least US$1,000 annually for each beneficiary. The Government has deemed the project a success and is considering mainstreaming FFF across the country.

SUDAN: Promoting food security and livelihoods in an arid climate

Among the many reasons for Sudan's vulnerability to climate change is the combination of entrenched poverty and that over 80 percent of the population is directly dependent on agriculture or natural resources for their livelihood. Changing rainfall and temperature are altering ecosystems, increasing pests and disease, and causing declining crop yields. Since the 1930s, the Sahara Desert has moved southward, coupled with increasingly severe droughts, a trend that is likely to continue with climate change. This places the majority of the population, who are dependent on rain-fed agriculture, in a precarious position. Sudan's Second National Communication recognizes that drought is one of the most important and frequently recurring challenges facing Sudan. Future drought threatens about 19 million hectares of rain-fed farms, as well as the livelihoods of pastoral nomadic groups. Between 1971 and 2001 over ten million people in Sudan were affected by drought. Such impacts will lead to increased risk of food shortage, famine and poverty.

Photo: Mother and daughter caring for seedlings for sand dune fixation. Supported by LDCF. Credit: Jennifer Baumwoll/UNDP

SUDAN

Project Title:
Implementing NAPA Priority Interventions to Build Resilience in the Agriculture and Water Sectors to the Adverse Impacts of Climate Change in Sudan

Duration:
2009-2013

Funding Sources:

GEF / LDCF

GOVT OF CANADA

Partners:
Sudan Higher Council for Environment and Natural Resources

Grant Amount:
US$3,300,000

Location:
River Nile State, North Kordofan State, Gedarif State, South Darfur State

As it is implementing its Poverty Reduction Strategy Paper and works to achieve its Millennium Development Goals, Sudan's primary development objectives include poverty reduction, improved food security and adapting to climate change. As such, UNDP has supported the Government to mobilize financing from LDCF and the Government of Canada to provide communities with the tools, knowledge and support to address climate risks, particularly as they relate to food security. Resources now have reached over 20,000 beneficiaries, with an additional 1,000 households from small-scale farming and pastoral communities targeted through the Canada-UNDP Adaptation Facility in the next two years. Of these beneficiaries, at least 50 percent are women-headed households, helping to strengthen women's leadership roles and access to resources for improving livelihoods resilient to the changing climatic conditions.

Using participatory and gender-sensitive approaches, the Government has worked with communities across four regions. These four regions represent different ecozones, in an effort to demonstrate resilient livelihood practices in a variety of ecosystems. In North Kordofan State, a semi-desert ecosystem, LDCF resources are improving the quality and quantity of animal feed by adding local ingredients and introducing vaccination programmes to maintain healthy livestock. This has produced rapid

returns such as increased milk and meat production. In one village, the added profit is estimated at US$10 per sheep after only six weeks. These positive results have attracted private sector investment as entrepreneurs have built mills in the villages to supply improved feeding ingredients. The feeding regimen has also been replicated outside the target villages as people have heard about its effectiveness and are eager to test it themselves. In the River Nile State, a desert ecosystem, land has been converted from rain-fed agriculture to micro-irrigated agriculture using diesel and solar pumps. This is providing consistent access to water and a means for villagers to shift to multi-cropping systems and cash crops. In these villages, there is a reported 20-60 percent increase in productivity for different crops from the irrigation systems. This has translated to increased profits, including for one tomato farmer whose earnings increased by approximately US$510 during one season.

Solar powered drinking water systems have also been introduced providing consistent access to water for households and home gardens. Across these States, LDCF has financed the building of shelterbelts to halt the encroachment of the desert into village farmland securing areas for agriculture and animal husbandry. Villagers raise small seedlings in their villages and then plant these in the surrounding sand dunes for fixation.

Adaptation activities have improved the well-being for households in both the short and long-term by providing both immediate income-generating activities and allowing for future activities to be sustained in a drier climate.

In order to support the continuation and replication of climate-resilient livelihoods, these activities are being implemented through the establishment of Village Development Committees. The committees include a diverse group of community members, including committed leaders and planners and a large number of women. This structure provides a strong foundation for future work, ensuring interventions are sustainable after financing is completed. In several villages, the Government has also supported microfinance for a revolving fund, which has allowed for LDCF financing to be sustainable and has expanded access to credit to more households. Many women manage these microfunds, contributing to their empowerment and ensuring they can play a leadership role in designing and investing in resilient livelihoods approaches.

Snapshot from the Portfolio

NICARAGUA: Farm transformation

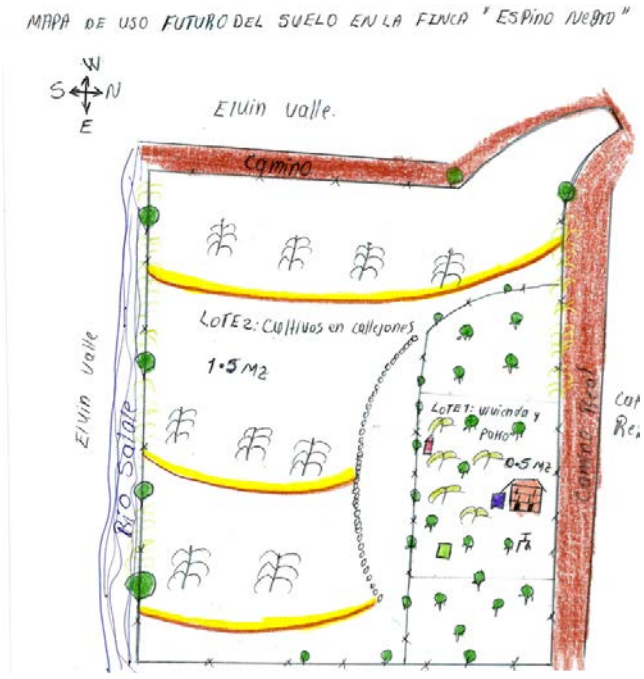


Image: Farm transformation plan sketch. Credit: Local farmer

Livelihoods for smallholder farmers in Nicaragua are increasingly at risk due to extreme weather and high levels of rural poverty. The ***Reduction of Risks and Vulnerability Based on Flooding and Droughts in the Estero Real River Watershed*** initiative, implemented by the Ministry of Environment and Natural Resources with financing from the Adaptation Fund, is working with over 1,000 smallholder farmers to develop long-term "Farm Transformation Plans." These plans promote agro-silvo-pastoral systems to help poor farmers increase income opportunities by making use of all four seasons and increasing production on small 1-2 hectare landholdings. Working with farmers, the plans are collaborative efforts that are tailored to each farms' soil, slope and the capacity and interests of the family. In order to increase agricultural output and ensure sustainability, these plans help control erosion and promote healthy soils. Implementation of the plans will be followed by the construction of water storage structures on each farm to secure a water supply for families, as the majority of households currently rely on collecting river water. Financing from the Adaptation Fund is providing the resources to make the transformation plans a reality, including providing materials such as cement, bricks, fruit trees and seeds.

NAMIBIA: Building resilience for the most vulnerable

Namibia, which has the most arid climate in sub-Saharan Africa, is expected to become drier as temperatures increase and precipitation decreases. Droughts have led to livestock deaths, a reduction in milk production, and crop losses, threatening food security. HIV/AIDS is another development challenge in the targeted region, which contributes to household vulnerability and compounds the urgency of addressing nutritional needs.

With SPA funding and UNDP support, the Namibian Government has pursued its long-term development strategy to empower communities to transition to climate-resilient livelihoods, consistent with its National Development Plans and National Poverty Reduction Programme. In particular, the Government has targeted the most vulnerable groups, including people living with HIV and AIDS, unemployed women and orphan-headed households, the visually impaired and flood victims.

The Government successfully tested a range of adaptation strategies for agriculture, poultry farming, livestock and aquaculture. One technique called Conservation Agriculture involves zero tillage agriculture, natural fertilizers and crop rotation. These combined practices increase soil fertility and soil water retention and have led to increasing yields. The Government also promoted more heat, water-stress and pest-tolerant breeds and crops varieties, which have provided a means to secure livelihoods even in drought years.

Boer goats which have more meat, mature faster and produce more offspring were introduced to villages in one region and farmers began breeding them with local goats, making the herd better suited to drought conditions. This initiative was so successful that it has now been expanded beyond the pilot regions. In other villages, women, all part of an HIV/AIDS support group, started rearing guinea fowls which reproduce faster, making them a better livelihood option. Improved seeds have led to over US$200 in increased income for 3,500 households. Access to water has also been improved through drip irrigation and water harvesting. These systems have resulted in increased

Photo: Farmer in Namibia. Supported by SPA. Credit: Jessica Troni/UNDP

NAMIBIA

Project Title:
Adapting to Climate Change through the Improvement of Traditional Crops and Livestock Farming

Duration:
2007 - 2012

Funding Sources:
GEF / SPA

Partners:
Ministry of Agriculture, Water and Forestry

Grant Amount:
US$960,000

Location:
Omusati Region

incomes, time and labour savings and a reduction in pests. Overall, the promoted activities reduced poverty by enabling access to essential technologies and more adaptive breeds for the first time.

The Government has worked to spread and expand the adaptation activities beyond the pilot regions through capacity building and policy development. Working with farmers in the Omusati Region, an adaptation toolkit was developed and tested and has now been expanded across the country. The Government also trained 75 extension workers in climate change impacts and agricultural adaptation strategies, which has contributed to the sustainability of the project since its completion. This training was also developed to support the integration of climate change into regional development plans. This has occurred through the integration of climate change issues into planning processes in the Omusati Region and into the Third National Development Plan. As a culmination of the success of the initiative, the Government with support from UNDP developed Namibia's Policy on Climate Change - the first for the country and a strong grounding for future work.

Snapshot from the Portfolio

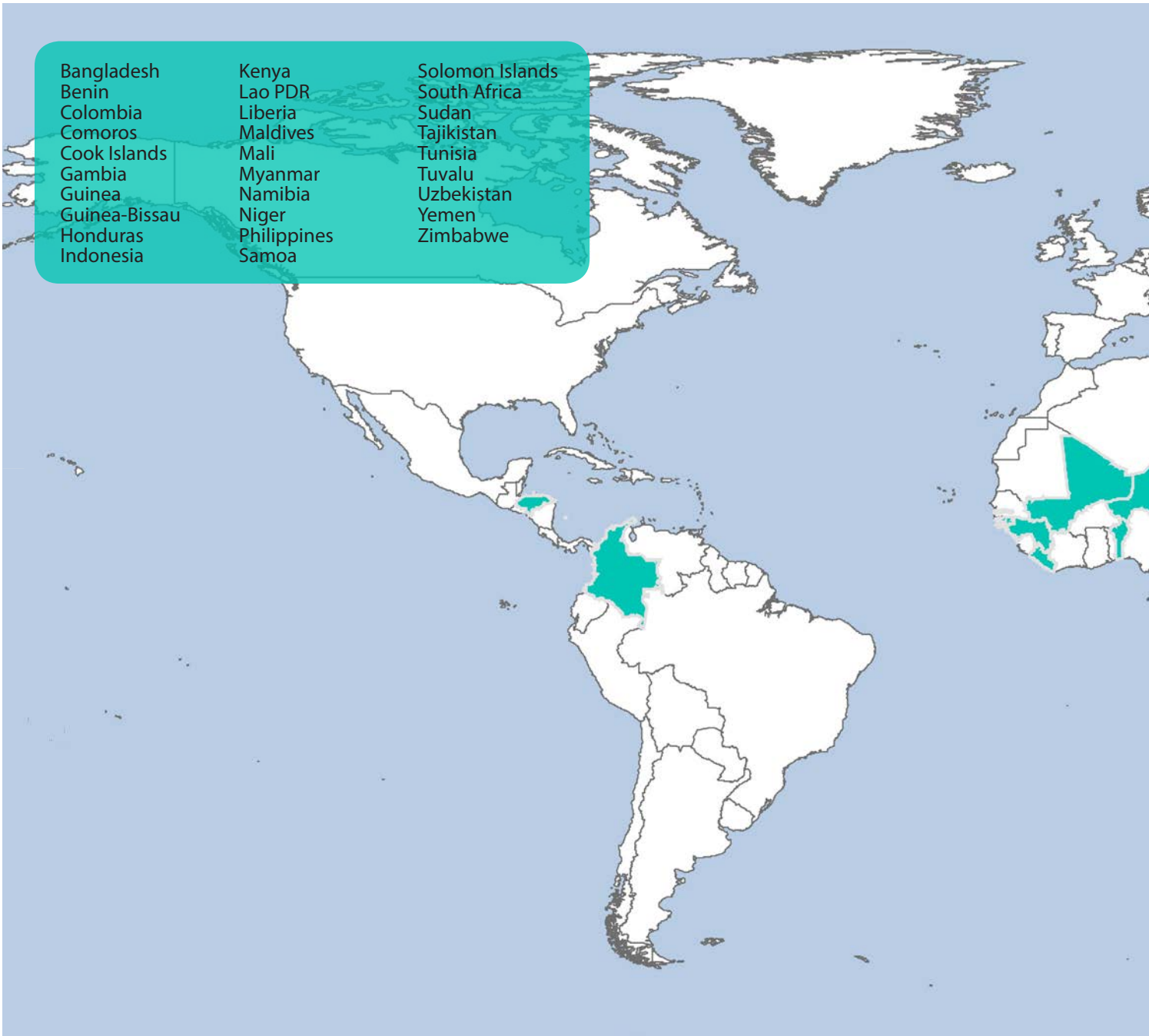
DJIBOUTI: Supporting climate-resilient agro-pastoral livelihoods

Photo: Native tree. Credit: UNDP Djibouti

Rural communities in Djibouti are suffering from water shortages impacting agricultural and pastoral livelihoods. Developing agro-pastoral shade gardens as an adaptation strategy for poor rural communities is financed by the Adaptation Fund, supported by UNDP and implemented by the Ministry of Habitat, Urbanism and Environment in order to improve resilience of rural communities to drought. Shade gardens provide favourable microclimatic conditions to support the integrated cultivation of drought and salt-tolerant plants such as improved varieties of date palm trees with local forage species. It also offers opportunities to diversify livelihoods both on and off-farm, as a means to spread the risks associated with more frequent climate anomalies. In order to address the numerous barriers to sustainable agro-pastoral livelihoods in the country, the Government will take a multipronged approach. This includes incentivizing sustainable and climate-resilient water management measures and practices, diversifying agricultural production, facilitating microfinance product development and supporting the creation of women's cooperatives.

4. Stimulating Entrepeneurship

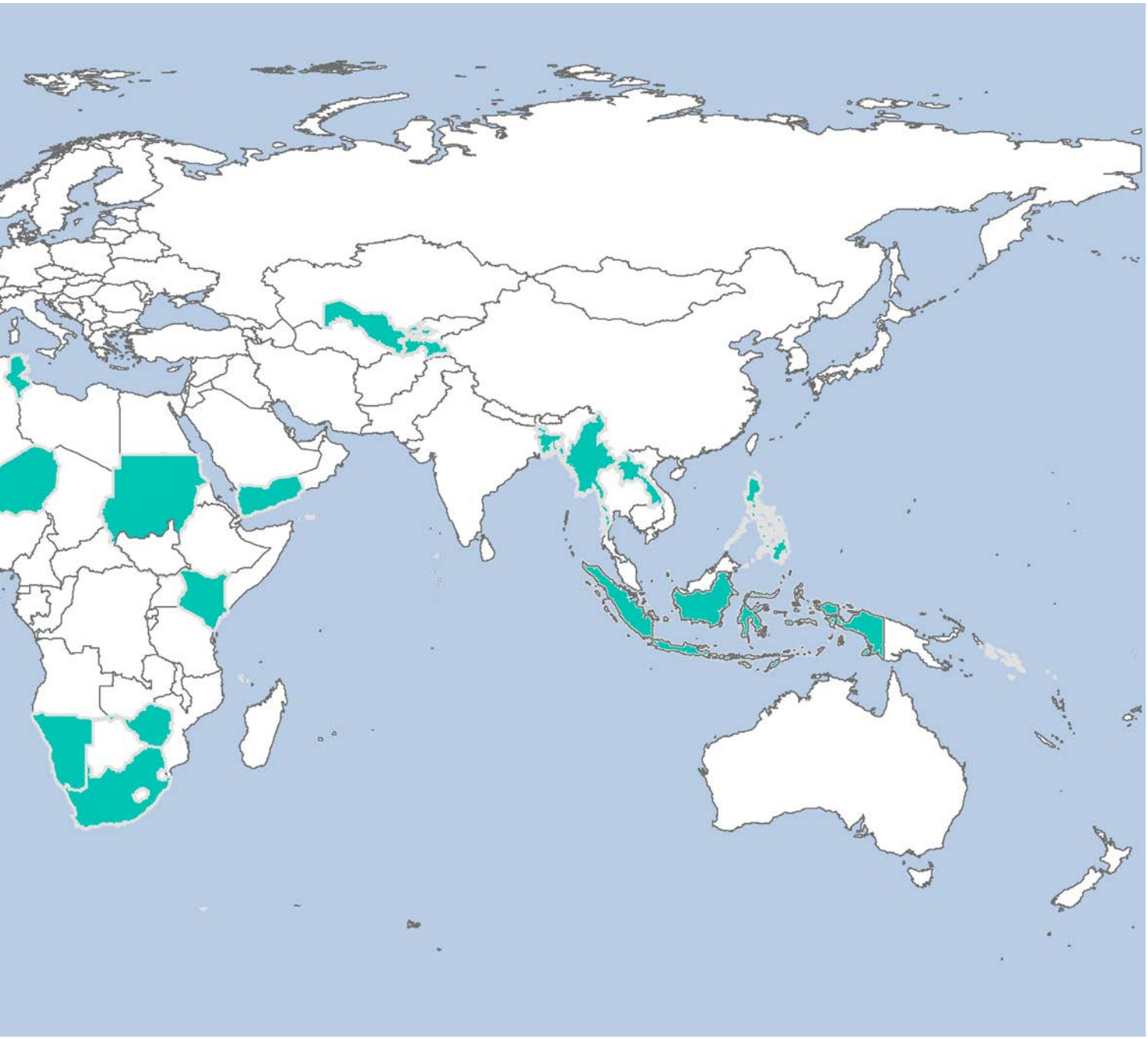
Country Initiatives Supported by UNDP



Map Source: UNDP PIMS data (as of March 1, 2013) mapped using ArcMap Software. Disclaimer: Any designations on maps or other references employed in t area or its authorities, or concerning the delimitation of its frontiers or boundaries.

This section presents cases of UNDP work in stimulating entrepreneurship. The private sector (which ranges from individuals to small and medium enterprises to larger firms) has an essential role to play alongside governments and communities. UNDP works to support enterprises in vulnerable communities and redirect private sector finance toward pro-poor investments. This work includes supporting small and medium enterprises to safeguard their current business interests, to diversify into new and promising business opportunities and to implement no-regrets options. These are are critical to reduce climate risk and to support resilient livelihoods at scale and in a sustainable manner.

In Tajikistan, small enterprises are increasing the value of their agricultural products while also entering new markets. In Colombia, cooperatives will provide training and employment for women to diversify livelihoods. In Niger, sewing centres and a gardening program have been developed to provide women with skills, financial literacy and access to technologies to support social and economic empowerment. These actions are addressing a host of market barriers which are important to sustain and create opportunities for risk management by private entities, provide income security, and goods and services in the face of mounting climate change risks and uncertainty.



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TAJIKISTAN: Supporting agro-biodiversity enterprises

Tajikistan is experiencing rising temperatures with increasing periods of intense rainfall, extreme cold and prolonged heat, resulting in more frequent floods and droughts. Native Tajik crop varieties are more resilient to climatic stresses but are no longer utilized due to changes in farming practices, availability of imported crops in local markets and loss of natural habitats. With just under half the population living in poverty and a domestic food shortage, Tajikistan's agricultural biodiversity forms an important foundation for livelihoods and long-term food security, especially in light of a changing climate.

According to The Poverty Reduction Strategy Paper for 2007-2009 and the recent National Development Strategy, agricultural production is central to economic development and poverty reduction in the next decade. These documents link agro-biodiversity conservation and climate change adaptation, demonstrating the importance of these activities within existing legal structures. Grounded within these policy frameworks, the National Biodiversity and Biosafety Centre, with financing from SPA and support from UNDP, is working to develop access to markets for local products, income opportunities and incentives for small enterprises to invest in agro-biodiversity.

The Government has worked with small enterprises in Tajikistan to increase the value of local agro-biodiversity products while expanding access to markets. Proper packaging, marketing, certification and standardization of seedlings and demonstration at national and local trade fairs are some of the activities, which are increasing income for farmers. This was the first time that certified and labelled products of local genetic resources from the targeted sites reached national markets. The combination of these activities has led to 40 percent increases in income for farmers from the previous year. This also has produced sustainable outcomes such as connecting farmers to supermarkets in the capital and contracts for the wholesale supply of seedlings.

Increasing market access has been combined with training and access to microloans. Microloans, disbursed through a GEF Small Grants Programme support the development of agro-biodiversity enterprises. Thus far, this has included financing for processing, expanding organic gardening enterprises, producing solar powered driers and canning.

Farmer sharing his pomegranate nursery. Supported by SPA. Credit: UNDP Tajikistan

The latter two activities were part of SPA financed training activities, demonstrating a successful channel for stimulating enterprise development.

The Government is bringing lessons learned into subdistrict, district and national policy planning processes, providing a means to scale up successes while developing a wider institutional framework. This includes simplifying certification procedures, promoting regulatory structures, developing supportive local development plans and drafting a national Agro-biodiversity Strategy. The Strategy will allow for Tajikistan to plan for food security and provide a robust enabling environment to secure livelihoods and access to markets for small enterprises.

TAJIKISTAN

Project Title:
Sustaining Agricultural Biodiversity in the Face of Climate Change in Tajikistan

Duration:
2009-2014

Funding Sources:
GEF / SPA
UNDP

Partners:
National Biodiversity and Biosafety Centre in the Government of the Republic of Tajikistan, UNDP Tajikistan, UNDP Communities Programme, GEF Small Grants Programme

Grant Amount:
US$1,900,000

Location:
Seven districts (Aini, Penjikent, Tajikabad, Nurobod, Khovaling, Baljuvan and Shurobad) and four pilot demonstration areas (Zeravshan, Rasht, Baljuvan and Shurobad)

COLOMBIA: Creating sustainable cooperatives

Colombia has one of the highest rates of disaster occurrences in Latin America. In recent years, increasing rainfall in the Depresión Momposina region, has led to above average flooding, threatening food security and livelihoods, especially for subsistence farmers. As flood events are predicted to increase, this will result in income loss and food insecurity along with other consequences such as blocked roads and water supply systems, displaced people and the destruction of homes.

The Government of Colombia is aware of this trend and with financing from the Adaptation Fund and support from UNDP has developed a comprehensive adaptation strategy for the highly vulnerable area in the southeastern sector of the Depresión Momposina with plans to scale up across the region. One component of the strategy is to foster climate-resilient livelihood strategies through linkages with broader national and international markets.

Increased flooding has produced an ideal habitat for certain aquatic plants which have thrived in waterways. The Government through a partnership with Artesanías de Colombia, an organization under the Colombian Ministry of Commerce, Industry and Tourism will work with approximately 6,440 women to develop cooperatives to create natural fibre crafts with these plants. Artesanías de Colombia has extensive experience providing technical assistance to women and providing employment and income for indigenous and local communities. Women, who have a small role in the local formal economy, will receive training and links to national and international markets for their products. The organization will provide technical support including training through a "learning by doing" approach on design, dyeing and weaving fibres and marketing. The women will produce a variety of products such as baskets, hats and jewellery.

The project will work with the most vulnerable populations in 11 communities and in target municipalities with high levels of poverty and low levels of access to basic social services such as education, health and sanitation. By replicating a previously successful model used by Artesanías de Colombia, the Government hopes to reduce poverty, empower women and diversify livelihoods to increase climate resilience. Additionally, the craft production process provides an adaptation benefit by clearing excess vegetation from waterways allowing for better natural regulation of water flow during extreme events.

COLOMBIA

Project Title:
Reducing Climate Change Risk and Vulnerability in the Region of La Mojana, Colombia

Duration:
2012-2017

Funding Sources:

AF

Partners:
Ministry of Environment and Sustainable Development

Grant Amount:
US$7,850,974

Location:
Municipalities of Ayapel, San Marcos and San Benito Abad

Photo: Aquatic plants thrive in flood conditions. Credit: Mark Kowal

NIGER: Developing women's enterprises

Niger is one of the poorest countries in the world and approximately 60 percent of Nigeriens live in extreme poverty, earning less than one US$ a day. Niger's high level of poverty, dry climate and agriculture-based economy make it vulnerable to future climate variability and change. Droughts have increased, leading to food crises, reductions in access to water and available pasture for grazing. This has further stressed ecosystems and increased soil erosion. Reduced food supply and agricultural income can lead to devastating impacts for those already in poverty, such as malnutrition and starvation.

Niger's Poverty Reduction Strategy and Rural Development Strategy underscore that the support of alternative livelihoods is essential for sustainable development. While climate risks were not taken into account in developing these documents, given the risks to agriculture, alternative livelihoods become an important component to consider and allows for synergies between policy and work on the ground. Therefore, the National Council for Environment and Sustainable Development in the Government of Niger with financing from LDCF and support from UNDP, has included alternative livelihoods as a component in a larger project, which seeks to build resilience of food systems and water resources.

Women are one of the primary focuses of the initiative as women are the main providers of food and household welfare. The initiative has improved their access to water supplies and therefore, reduced their workload, which has afforded them time to engage in income generating activities that can provide a safety net for households. Sewing centres have been established in all eight areas and are supporting economic alternatives for women for the first time. The sewing centres provide a training program in sewing, tailoring, machine maintenance, management and accounting. After the training, the women use the sewing centres to house their businesses. The centres are also sites for youth activities, such as literacy classes and workshops, which build adaptive capacity for the next generation.

Photo: Women entrepreneu

In addition, the Government has supported the development of fruit and gardening programmes that can withstand the drier climate. Extension services conducted trainings on agriculture, management and provided supplies such as wire fences, drought-resistant seeds, organic fertilizers and pesticides. This resulted in 3500 farmers using drought-resistant varieties of millet, sorghum and cowpea, increasing production. Women were also supported to harvest seeds and develop cooperatives in order to increase their access to markets and secure supplies at discounted rates, increasing profits. The vegetable gardens alone led to increased income by around US$220 per woman.

In order to increase access to climate information, National Meteorology Directory (DNM), installed 100 rain gauges in 80 villages and provided women farmers with the appropriate planting dates and the rainfall levels needed for sowing. At least 100 women have been trained to read the rain gauges and transmit data to DNM. This has provided women with information and skills needed to make appropriate decisions. The combination of these support activities has increased the quality and quantity of agricultural goods, providing crops for consumption, sale and storage. It has improved food security and nutrition in the long term, securing access through drought periods. The success of activities became clear as families were able utilize these skills to recover from food shortages in 2012.

Additional financing from the Canadian Government will be used for training courses for women and youth in entrepreneurship, value chain management, food processing and rural finance. This will provide capacity building for the women to establish and sustain successful businesses. The Nigerian Government will also partner with microfinance institutions to provide access to credit for enterprises during and after the training, removing a common barrier within these communities. According to an independent assessment, people's lives have improved from the provision of resources, tools and training. It has provided a reliable income stream to assist with household expenses and new skills while also empowering women to join community development decision-making processes.

rs at sewing centre in Dakoro, Niger. Supported by LDCF. Credit: Julie Teng/UNDP

NIGER

Project Title:
Implementing NAPA Priority Interventions to Build Resilience and Adaptive Capacity of the Agriculture Sector to Climate Change in Niger

Duration:
2009-2015

Funding Sources:

GEF / LDCF

UNDP

GOVT OF CANADA

GOVT OF NIGER

Partners:
National Council for Environmental and Sustainable Development

Grant Amount:
US$3,500,000

Location:
Eight communes (Loga, Chetimari, Tanout, Niamey Commune 1, Roumbou, Kao, Aderbissanat and Tondikiwindi)

Snapshot from the Portfolio

PHILIPPINES: Engaging the private sector for smallholde

An intervention in the pipeline, ***Scaling up Risk Transfer Mechanisms for Climate Vulnerable Agriculture-based Communities in Southern Philippines,*** is due to expand current government initiatives to increase the economic viability of small-scale farming in the Southern Philippines. With funding from the SCCF and support from UNDP, the Government of the Philippines will deliver a climate risk transfer mechanism to at least 1,500 households, with a focus on women farmers. The centrepiece of this effort is around scaling up index-based weather insurance to support farmers throughout the region to withstand increasing climate variability. Index-based insurance provides farmers with a pay-out when rainfall or temperature reach a predetermined threshold, ensuring timely issuance of funds, which allows farmers to be able to replant during the same season. Insurance products will be combined with credit and savings products, health insurance and financial literacy trainings, building household resilience. In order to incentivize private sector engagement in providing these services to rural households, the Government will develop supportive regulatory and fiscal structures including policy guidelines, standards and incentives. In particular, the focus will be on amending the current regulatory structure for a loan guarantee fund for farmers to also include guarantees for the insurance industry. This will decrease the risk and transaction costs for private insurance companies, reducing barriers while securing access to insurance products for more farmers.

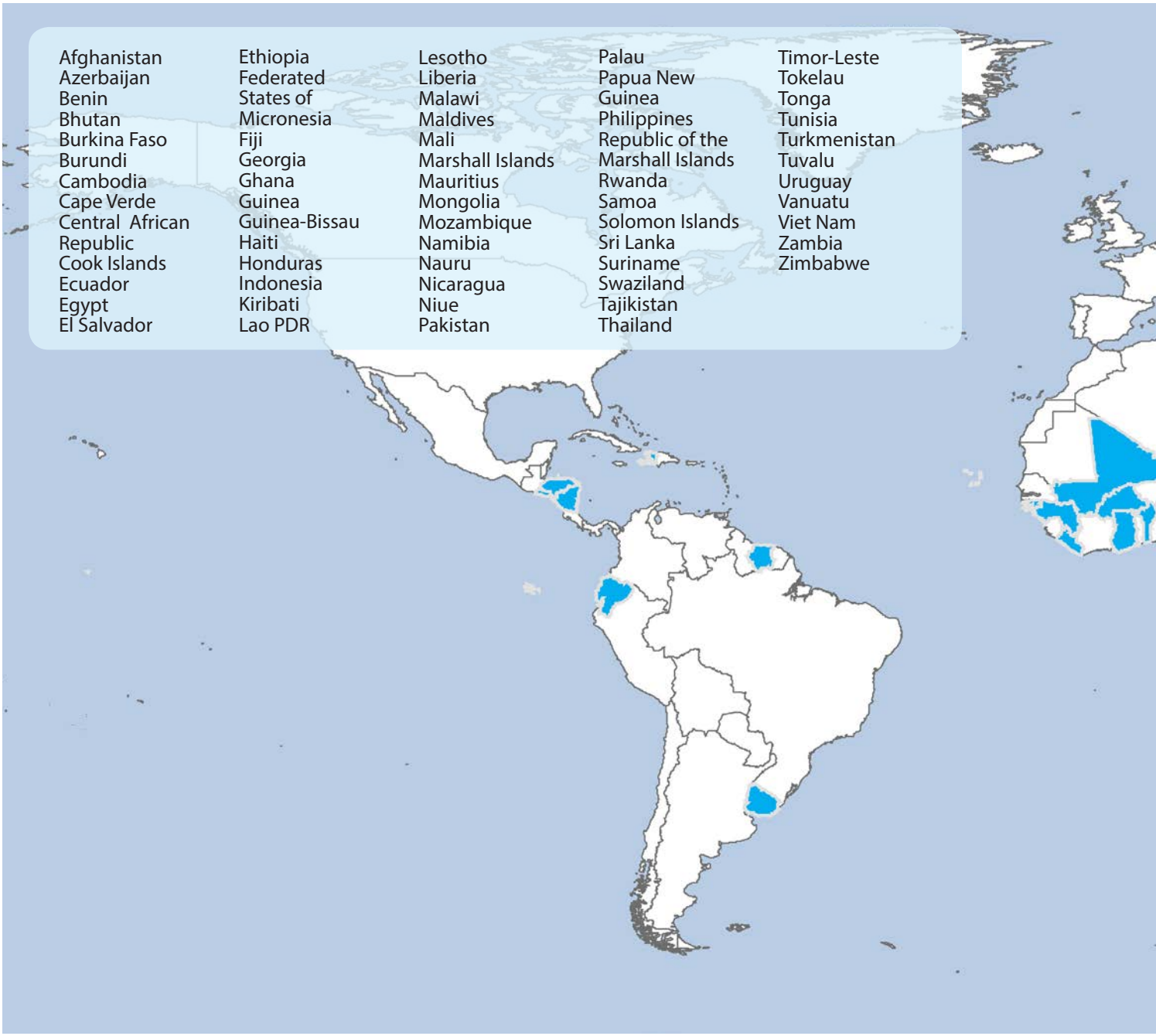
Photo: Climate-resilient rice to help farmers address climate variability and ensure income and food

ers

security. Supported by LDCF. Credit: UNDP Cambodia

5. Mainstreaming Adaptation into Development

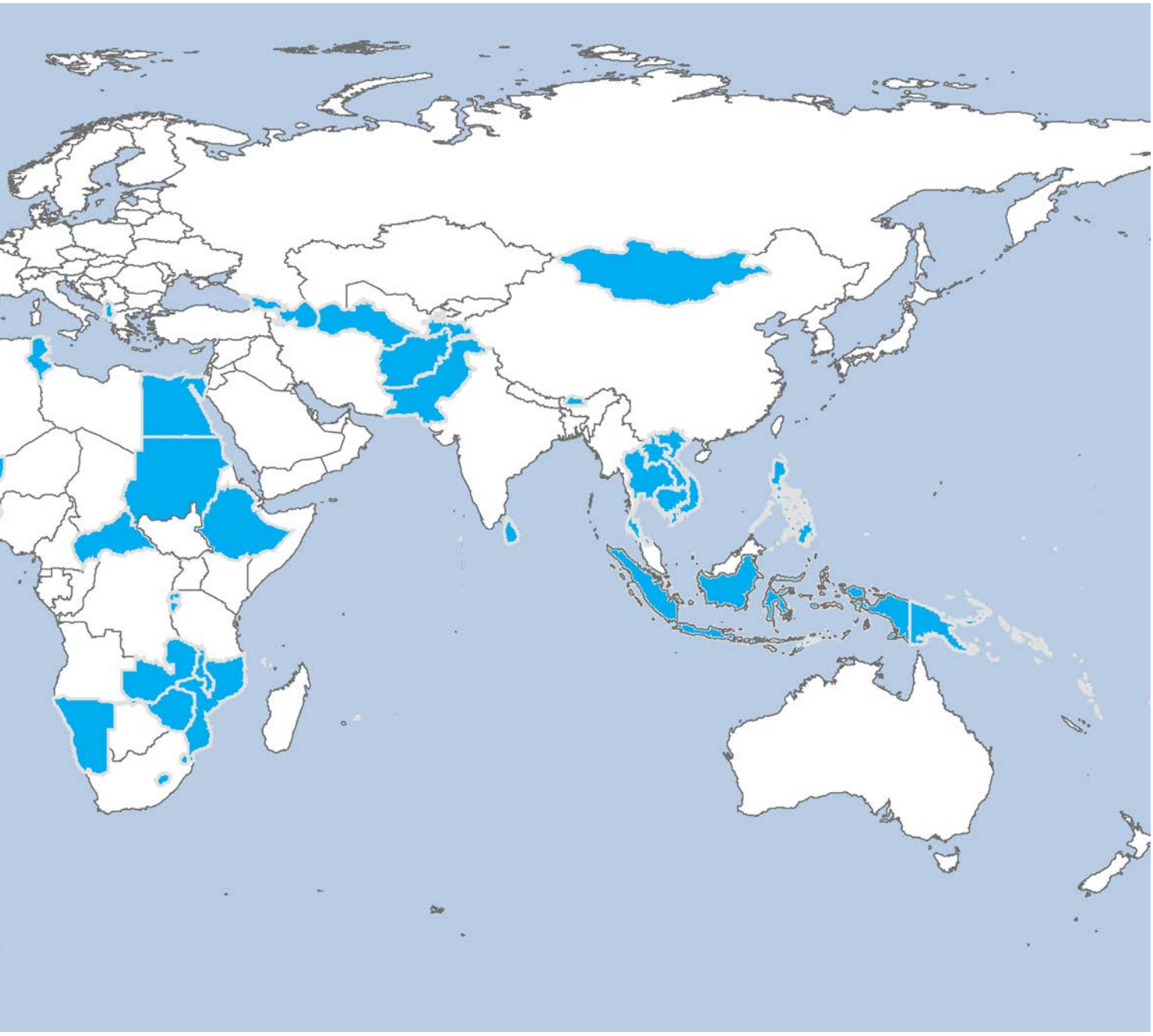
Country Initiatives Supported by UNDP



Map Source: UNDP PIMS data (as of March 1, 2013) mapped using ArcMap Software. Disclaimer: Any designations on maps or other references employed in th its authorities, or concerning the delimitation of its frontiers or boundaries.

According to the 2013 Human Development Report (UNDP), new policies and structural changes are needed in order to align human development and climate change goals in low-emission, climate-resilient development strategies. Integrating immediate as well as medium and long-term climate risks into development planning at all levels, secures development gains and allows for investment in climate-sensitive priorities.

This section presents UNDP's work to support countries to mainstream adaptation into planning across sectors and scales. In Mali, local development planning is taking into account climate risk with attention to gender-based vulnerabilities. In the Cook Islands, efforts have been ongoing at the national and local levels including a new national climate change and disaster risk reduction policy and incorporating adaptation priorities into community development planning. In Cambodia, climate change risks have been integrated into development and financial decision-making at the local level. This work is an important step toward robust climate-resilient pro-poor policies that promote livelihoods and socio-economic development.



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MALI: Integrating climate risks into local development planning

Over 73 percent of Mali's rural people live in extreme poverty, earning less than US$1 a day. Mali's economy and livelihoods are dependent on agriculture, a sector which will be heavily influenced by climate change. Arable land within the arid landscape is expected to decrease as the growing season becomes shorter and crop yields decline. This is an increasing hardship, especially for women who represent 60 percent of the population in the targeted municipalities, although control only 2 percent of the land. This also has profound implications for food security, as the majority of agriculture is for household consumption.

The ongoing UNDP supported adaptation initiative in Mali is grounded in the Government's overall Poverty Reduction Strategy, which places the agriculture sector at the centre of the pro-poor economic growth plan. In 1993, Mali began its decentralization process and development planning now occurs at the municipal level, providing the appropriate entry point to address adaptation and poverty reduction.

Following guidelines developed with financing from LDCF, four vulnerable municipalities have begun to integrate climate change risks into their Economic, Social and Cultural Development Plans with special attention to gender-based vulnerabilities. This decision was made based on evidence produced through two studies conducted on the impacts and costs of climate change on food production and income-generating activities in the municipalities. A review of current policies was also completed to assess the relevance of mainstreaming climate change into development planning documents. These studies raised the awareness of local authorities, regional and national decision makers, demonstrating the need to integrate climate risks into four-year development plans and budgets.

The LDCF initiative plans to conduct several linked assessments to develop informed, evidence-based plans and an inclusive, pro-poor governance approach. A cost-benefit analysis incorporating local communities' input will provide policymakers with data to prioritize adaptation measures. A gender-sensitive vulnerability and risk assessment will also be conducted to support the revising of guidelines on mainstreaming climate change into the development plans. In order to ensure implementation, municipalities will also receive support to develop financing strategies to cover the added cost of adaptation within their budgets.

These efforts have been grounded in community engagement. Villagers have identified the key adaptation priorities to incorporate into development plans. With added funding from the Government of Canada, local efforts will be scaled up to mainstream climate change at the national level.

MALI

Project Title:
Enhancing Adaptive Capacity and Resilience to Climate Change in Mali's Agriculture Sector

Duration:
2010-2016

Funding Sources:
GEF / LDCF
UNDP
GOVT OF CANADA

Partners:
National Directorate of Agriculture

Grant Amount:
US$2,340,000

Location:
Four municipalities (Sandare, Massantola, Mpessoba and Cinzana)

COOK ISLANDS: Integrating climate change adaptation and disaster risk reduction at the national and subnational level

The Cook Islands, especially the isolated populations in Pa Enua, the sister islands to the capital Rarotonga, are vulnerable to anticipated climate impacts including increased intense rainfall events, rising sea levels and hotter, drier weather. There is also evidence of increased frequency, duration and intensity of extreme events such as tropical cyclones, floods, droughts and storm surges with devastating effects on island communities.

Given that the Cook Islands will suffer from both changes in average climate conditions and extreme events, the Government, with financing from the Adaptation Fund and support from UNDP, has taken steps to integrate its adaptation and disaster risk management policies in order to support proactive and strategic decision-making at the national, island and community levels. The initiative is grounded in the National Sustainable Development Plan (2011–2015) and the Joint National Action Plan for Disaster Risk Management and Climate Change Adaptation. Policy integration will also be supported through strengthening the coordination of key institutions within national sectoral agencies and island administrations.

With UNDP's technical support in the drafting process, the first national policy on climate change was approved in August 2013. The policy, entitled Climate and Disaster Compatible Development Policy, provides a clear vision for a climate-resilient future for the island. The policy calls for an integrated, equitable approach to decision-making based on traditional, local and scientific knowledge. It states that policy measures must be economically efficient and sustainable.

The national policy has been linked to the development of Community Sustainable Development Plans. Each of the eleven island plans integrate climate change and disaster risk reduction. Working with Island Councils, tailored adaptation actions have been identified and implemented to address the risks and needs of each island. The actions are focused around the primary development sectors including water, agriculture, fisheries, health, coastal management and tourism. This policy framework ensures policy coordination and effective implementation of adaptation priorities at the local level in order to secure livelihoods.

Photo: Climate change adaptation leaders in Cinzana, Mali. Supported by LDCF. Credit: UNDP Mali

COOK ISLANDS

Project Title:
Akamatutu'anga i te iti tangata no te tuatau manakokore ia e te taui'anga reva - Strengthening the Resilience of our Islands and our Communities to Climate Change (SRIC - CC)

Duration:
2012 – 2017

Funding Sources:
AF, UNDP

Partners:
Implementing Partner: Climate Change Coordination Unit and Emergency Management, Office of the Prime Minister

Grant Amount:
US$4,960,000

Location:
Pa Enua

CAMBODIA: Integrating climate change risks into poverty reduction efforts at the subnational level

Cambodia is one of the poorest nations in Southeast Asia, where 85 percent of the population and 90 percent of the poor live in rural areas. Most rural villagers are dependent on rain-fed subsistence agriculture for their income and food security and as such are vulnerable to climate change and variability. The Human Development Report for Cambodia (2011) focused on the intersections of livelihoods and climate change in the country, painting a bleak picture of a future without adaptation and support for rural people. Water resources are expected to experience changes in availability, quality and quantity. Floods, droughts and storms are likely to become more frequent and intense. A change in the timing, duration and intensity of the seasons is also expected, producing a longer and drier dry season and a wetter and longer wet season.

Since 2009, the Government of Cambodia, with financing from the LDCF and technical support from UNDP, has begun to reduce climate risks for agriculture and water resources, as two prerequisites for rural livelihoods. The approach adopted by the Government is aligned with its decentralized governance system and is focused on integrating adaptation into the development planning process at the subnational level. LDCF funds were used to conduct a Vulnerability Reduction Assessment and a linked gender assessment in sixteen pilot communes. This provided essential data for commune councils to effectively integrate pro-poor climate activities into their Commune Investment Plan for the first time. Some of the promoted activities included the dissemination of weather information and rehabilitation of irrigation systems. At the provincial level, development plans in the targeted provinces have incorporated measures to address climate risks including support for livelihood activities and rehabilitation of riverbanks to reduce erosion and landslides.

After successfully pilot-testing adaptation planning, the National Committee for Subnational Democratic Development has decided to mainstream climate change into subnational government policy processes across the country. Through support from development partners including UNDP and civil society organizations, the Committee is developing operational guidelines for mainstreaming. This will provide technical assistance to subnational administrations including guidance on mainstreaming tools, a financing framework, capacity development training and a coordinated dissemination plan to subnational stakeholders.

Through financing and support, planning mechanisms and human resources are now able to incorporate current and future climate risks into development and financial decision-making. Systems have been created that promote a participatory and gender-sensitive approach ensuring that the Government can respond to community needs, including women's needs. It is envisaged that this experience will help local administrations to effectively utilize available climate scenarios for infrastructure, agriculture and water planning in order to support adaptation at the local level.

A second UNDP initiative is currently in the planning stages to enhance this process by strengthening the current vulnerability assessment methodology and building commune government capacity to plan and implement adaptation priorities.

CAMBODIA

Project Title:
Promoting Climate Resilient Water Management and Agricultural Practices in Rural Cambodia

Duration:
2009-2015

Funding Sources:
UNDP, GEF / LDCF, GOV'T OF CANADA

Partners:
Implementing Partner: Ministry of Agriculture, Forestry and Fisheries; Cooperating Agencies: Ministry of Water Resources and Meteorology; Ministry of Environment; Ministry of Women's Affairs

Grant Amount:
US$1,850,000

Location:
Preah Vihear Province, Kratie Province

Photo: Gardens are flourishing now that there is consistent access to water. Supported by LDCF. Credit: UNDP Cambodia

6. Conclusion

Is there a value in addressing adaptation and poverty reductions simultaneously? The experiences and knowledge generated through the various initiatives that UNDP supports across the globe indicates that adaptation and poverty reduction are inherently linked. Tackling one without the other may be not only be inefficient but also ineffective. This is because climate change is a risk multiplier – with climate risks adding further socio-economic and environmental risks to the already significant challenges that developing countries and poor communities face. Therefore, addressing poverty reduction and climate change is essential to preserve past, current and future development gains.

How, then, do we effectively address adaptation and poverty through an integrated approach? Examples of UNDP-supported efforts to address adaptation and poverty reduction together have been illustrated in this publication. UNDP is supporting governments by developing new institutions, methodologies and decision-making tools, which enable evidence-based pro-poor policymaking. In addition, we recognize that adaptation and poverty reduction actions begin within households and communities. In this context, UNDP has worked with governments to build on local knowledge and test innovative approaches, which increase agricultural productivity, protect ecosystems and increase access to water. These demonstration sites provide the grounding for developing poverty reduction and adaptation policy actions, while promoting bottom-up approaches, which support local needs. Furthermore, stimulating entrepreneurship and engaging the private sector provides income opportunities and supports women – two necessary actions for poverty reduction.

With UNDP support, several countries are building robust linkages to national and international markets for small and medium enterprises while engaging private sector support for climate-resilient livelihoods. Finally, integrating adaptation into policy has provided the means for countries around the world to address climate risk within their development pathways, securing livelihoods and development gains.

Addressing adaptation and poverty reduction together has a significant value to development, as we cannot achieve sustainable development with only one or the other. Together with our partners, UNDP is committed to further learning, innovating and implementing better ways to adapt to climate change risks while simultaneously addressing poverty reduction in order to ensure our development is resilient.

Photo: Smiles abound in Tuvalu. Supported by SCCF. Credit: Joe Hitchcock

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Photo: Peanut farmers on Epi Island, Vanuatu. Supported by SCCF. Credit: Joe Hitchcock

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